Treatment of Psychotic and Neurologically Impaired Children:

A Systems Approach

Treatment of Psychotic and Neurologically Impaired Children:

A Systems Approach

David M. Brubakken, Ph.D.
Director, Child and Adolescent Program
Mendota Mental Health Institute
Madison, Wisconsin

Judy A. Derouin, A.C.S.W.
Director, Social Work Services
Mendota Mental Health Institute
Madison, Wisconsin

Helen L. Morrison, M.D.
Director, The Psychiatric Evaluation Center
Chicago, Illinois

VNR VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI ATLANTA DALLAS SAN FRANCISCO
LONDON TORONTO MELBOURNE

18.98

618.928 98
BRU

rch
B
Date 25-3-81
Acc 2766

Van Nostrand Reinhold Company Regional Offices:
New York Cincinnati Atlanta Dallas San Francisco

Van Nostrand Reinhold Company International Offices:
London Toronto Melbourne

Copyright © 1980 by Litton Educational Publishing, Inc.

Library of Congress Catalog Card Number: 79-17740
ISBN: 0-442-26647-2

All rights reserved. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems—without permission of the publisher.

Manufactured in the United States of America

Published by Van Nostrand Reinhold Company
135 West 50th Street, New York, N.Y. 10020

Published simultaneously in Canada by Van Nostrand Reinhold Ltd.

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging in Publication Data

Brubakken, David M.
Treatment of psychotic and neurologically impared children.

Bibliography: p. 237.
Includes index.
1. Psychoses in children. 2. Brain-damaged children. 3. Community mental health services. I. Derouin, Judy A., joint author. II. Morrison, Helen L., joint author. III. Title.
RJ506.P69B74 618.9′28′9 79-17740
ISBN 0-442-26647-2

To those of ours who have taught us how to learn and care.

Preface

This book represents a culmination of work that began 8 years ago in a state mental health institute in Wisconsin. It reflects the development of a philosophy and attitude for the treatment of psychotic and neurologically impaired children. That philosophy was facilitated by a change in the Mendota Mental Health Institute's mandate with a new emphasis on research, community consultation, and community training. The purpose of this book is clear. It is to emphasize that an integrated community systems model is critical and essential for providing services for such children if they are to live their lives outside the confines of an institution. That integration requires the involvement of all the components of each child's social and cultural system, including family, schools, mental health boards, developmental disabilities boards, and social service agencies. It is through the process of facilitating cooperation in the delivery of services that one can develop a continuum of growth opportunities for every child. It reflects work with systems in both rural and urban settings. This book describes the process of integrating those systems–a network of relatively independent educational and social agencies.

Beginning with a review of developing concepts in diagnosis and treatment, the book reflects on the Project for Psychotic and Neurologically Impaired Children and its "systems" model. Issues in family intervention as well as school and community intervention illustrate the various efforts applied and found necessary for maintaining such children in community living without the burden being placed solely on the family. Research and program evaluation results are presented as supportive evidence of the "systems" model. Other issues that make this program work such as effective staff training, as well as administrative design and leadership, are also discussed. All these issues are illustrated in a case study chapter.

This book describes an effective system. It is not a "how-to-do-it" book on the range of individual treatment programs needed for the process of educating a child. Such programs are reflected in the context of the "systems." Nor is it intended that this book be used as a means for people to learn how to use behavior modification to teach skills. Much of that type of writing is already available in packaged kits sold by various publishers. Rather, it is hoped that this book will provide the reader with new ideas for designing flexible systems to provide for the community living of such severely impaired and difficult to manage children.

Acknowledgments

The authors wish to express their appreciation to Dr. Leroy A. Ecklund, Director, Mendota Mental Health Institute, for his continuous clinical and administrative support of the project; to Dr. Robert Browning for his involvement in the development of the early stages of the project, especially in the area of research design; to other key clinical staff including Mrs. Sue Minihan, Mrs. Bonnie Schriner Talarek, Kathy Treharne, Dr. David J. McCormick; and to other staff members, children, and families who made the project a success.

The authors also wish to express their appreciation to Mrs. Cindy Smith for the typing of the manuscript. They also wish to express their appreciation to Mrs. Janice Gehrman for assistance in the final preparation of this manuscript.

Contents

Preface vii

Acknowledgments ix

1 Current Concepts in Diagnosis and Etiology 1

2 Developing Concepts in Treatment 35

3 Method of Evaluation and Implementation 65

4 The Project for Psychotic and Neurologically Impaired Children 74

5 Issues in Family Intervention 108

6 Issues in School Intervention 143

7 Issues in Community Intervention 165

8 Darren 184

9 Factors Affecting Therapeutic Effectiveness 221

Summary 230

References 237

Index 261

Treatment of Psychotic and Neurologically Impaired Children:

A Systems Approach

1

Current Concepts in Diagnosis and Etiology

Colby et al. (1971) state that "to call a child "autistic" is to place him in a class of psychiatric disorders characterized by a syndrome, that is a cluster of properties that tend to appear together" (p. 1). Kanner (1943) was the first clinician to suggest the term *autism* and delineate the clusters of properties that characterize the syndrome, only a decade after the establishment of the idea of childhood schizophrenia. His effort represented the first attempt at a major differentiation of a subgroup within the group of children called "childhood schizophrenics." From the observation of 11 cases, he noted the following similarities:

1. from the beginning of life there were feeding problems
2. an anticipatory posture in preparation to being picked up was never assumed
3. a horror reaction occurred to loud noises and moving objects
4. actions and speech were very repetitious with little spontaneous activity
5. eight out of eleven acquired speech but it was echolalic, never used in communication
6. they established close relationships with inanimate objects
7. those with speech showed very good rote memories
8. their physiognomies were intelligent in appearance
9. they were physically normal
10. all came from highly intelligent families

11. extreme autistic aloneness
12. great desire for preservation of sameness (p. 220)

Kanner emphasized that the condition was apparent from early infancy and, in this respect, differed from childhood schizophrenia. The characteristic features most often considered from this list are profound withdrawal from contact with people, obsessive desire for preservation of sameness, strong relationship with objects, and lack of speech or noncommunicative speech.

Although Kanner's precise clinical descriptions of the symptomatology of autism have remained essentially unchanged since 1943, some attempts have been made to systematize observations under more specific clinical headings. This has tended to blur some of the guidelines and has resulted in what Rimland (1964) has called "blanket and indiscriminate application" (p. 18) of the term. Kanner has written about "the dilution of the concept of early infantile autism," estimating that out of every 100 children diagnosed as autistic and referred to him for confirmation, only ten are, in fact, autistic (Rimland, 1970). The problem seems to come from the fact that some people use the term *descriptively,* where others use it *diagnostically.*

Rimland (1964) has differentiated between autism and childhood schizophrenia. The main difference cited by him is that infantile autism is present from the beginning of life whereas childhood schizophrenia is "disordered" behavior that follows an initial period of normal development. Other major differences cited are:

1. the autistic child is usually healthy and beautiful; the schizophrenic child generally has poor health
2. over 80% of schizophrenic children show abnormal EEG's; EEG's in autistic children tend to be normal
3. autistic children show withdrawal and aloneness; schizophrenic children are the opposite
4. preservation of sameness is not uncommon among autistic children
5. hallucinations are absent in autistic children
6. there is inferior motor performance in autistic children
7. there is an absence of echolalia, part-whole confusion, and metaphorical language in schizophrenics
8. high levels of education and intelligence characterize autistic families; not typical in schizophrenic families

Rimland uses the term diagnostically, saying that "all autistic children must fit . . . (Kanner's) . . . criteria, but not all children who fit these criteria are autistic."

> There is, of course, no denying that overlapping symptomatology create problems in trying to distinguish between different illnesses which have a number of features in common. But the problem is definitely not solved by the decree that the sharing of symptoms makes the diseases identical or that because of the partial resemblance, a differentiation is unnecessary. (pp. 21–22)

Autism is generally differentiated from "childhood schizophrenia," although this is not always the case. Creak (1964) defined nine points that delineated "the schizophrenic syndrome" in childhood. Childhood autism was considered to be a subcategory of this syndrome. O'Gorman (1967) uses this list and reduced it to essential features, altering somewhat the content of the original points. Menolascino (1965) examined 34 children who initially presented clinical pictures of autism. Further investigation revealed eight distinct etiological subgroupings, only one of which was the syndrome described by Kanner.

Rimland has stated that the term *primary autism* is equivalent to Kanner's syndrome and should be reserved for those cases where no obvious organic impairment exists. *Secondary autism,* then, is used to designate cases with organic damage. DeMyer et al. (1971) use the term *primary autism* to designate the "higher functioning" child where perceptual-motor performance approximates chronological age. *Secondary autism* is used for the child who is "lower functioning" or has "a flat perceptual-motor performance curve" (p. 177). Mahler (1958) has used primary to designate children who are "fixated"; and secondary for those who "regressed . . . when a symbiotic level of development could not be maintained." Spitz (1971), on the other hand, does not feel that infantile psychosis is possible until after the establishment of the ego and considers all prior "pathogenic disturbances" to be failures in adaptation. Obviously, nosological problems abound.

Ornitz and Rivto (1968) offer a most concise classification of autistic symptoms. The symptoms may be viewed as belonging to one of five groups or subclusters of symptoms. They are:

1. Disturbances of perception: These include heightened awareness; hyperirritability; obliviousness to external stimulation; auditory difficulties; visual, tactile, gustatory, olfactory, proprioceptive, and vestibular aberrations.
2. Disturbances in motor behavior associated with sensory input or discharge.
3. Disturbances in relating.
4. Disturbances in language.
5. Disturbances in Developmental rate.

Clancy and Rendle-Short (1968) list slightly different behavioral symptoms, requiring the presence of seven items out of fourteen listed for a diagnosis of infantile autism. In addition to some of those posed by and made implicit by Kanner, they include:

1. appearance of deafness
2. lack of eye contact
3. marked physical overactivity
4. no regard for an object's real use, preoccupation with details of it, spinning and twirling of object
5. failure to respond to painful stimuli, bizarre movements such as rocking, flapping of hands, self mutilation, failure to respond to auditory stimuli
6. lack of fear about realistic dangers
7. inappropriate giggling, laughing (p. 627)

A prospective study of the diagnosis, utilizing Clancy's (1968) criteria and comparing it with Eisenberg and Kanner's (1956) more classical criteria, was reported by Capute et al. (1975). One child was diagnosed according to the Kanner criteria, while 48 out of the 200 children fulfilled the Clancy criteria. Conclusions were that the scale would produce a large number of false positives.

Clinicians are making further distinctions within the category of infantile autism. Rendle-Short (1971) suggests three categories. The first group consists of those children displaying the "classic" Kanner syndrome within the first year of life. Slightly different is a category of children whose symptoms appear following a traumatic event at the age of 3 years or older; this often occurs after a period of normal development. Secondly, there are those autistic behaviors that are secondary to gross mental retardation. The third group consists of those who are clinically autistic but whose behavior is related to a psychological trauma, the symptoms disappearing when the trauma no longer exists.

> The term "Autistic Children" as used by the National Society of Autistic Children shall include persons, regardless of age, with severe disorders of communication and behavior whose disability became manifest during the early developmental stages of childhood. "Autistic Children" includes, but is not limited to, those afflicted with infantile autism (Kanner's syndrome), childhood psychosis, childhood schizophrenia or any other condition characterized by severe defects in language ability (such as profound aphasia) and behavior and by failure to relate appropriately to others. The autistic child appears to suffer primarily from profound central processing disorders, i.e., a selective impairment of his cognitive and/or perceptual functioning, the consequences of which are manifested by sensory-motor, cognitive, social and language development impediments which reduce the ability to understand, communicate, learn, and participate in social relationships.

Specific Characteristics

Such children are typically multi-handicapped in their abilities to receive and communicate information, resulting in behavior inappropriate to physical and social demands of their environment. As in aphasia, the dominant communication disorder or profound learning disability appears to constitute a severe central disorder in symbolic ability resulting from the incapacity to use and to understand language appropriately, particularly a seeming inability to process language through auditory channels. The difficulty is often accompanied by impairment in motor, visual, and auditory perception. The behavior of an autistic child is typically improved by the application of appropriate educational procedures. A combination of some or all of the following idiosyncratic behaviors characterize the autistic child. These behaviors vary from child to child and time to time in severity and manner.

1. Severely impaired speech or complete lack of speech
2. Impaired or complete lack of relatedness and social inaccessibility to children, parents and adults; seeming lack of desire for affection; aloneness; withdrawal
3. Extreme distress for no readily discernible reason
4. Lack of intellectual development or retardation in certain areas, sometimes accompanied by normal or superior abilities in other areas
5. Repetitive and peculiar use of toys and objects in an inappropriate manner and/or similar repetitive and peculiar body motions, such as incessant rocking, ritualism
6. Unusual reaction to perceptual stimulae, such as seeming not to hear certain sounds and over-reacting to others (e.g., holding hands over ears) or "looking-through" objects, poor eye contact, or inability to appropriately perform certain gross and/or fine motor activities (walking with peculiar gait, limpness in fingers, inability to hold a pencil appropriately)
7. Onset of disorder at birth or apparent normal early development followed by deterioration in functioning or decreased developmental rate within approximately the first three years of life
8. Hyperactivity or passivity
9. Apparent insensitivity to pain

National Society for Autistic Children (1975)

The opposite of overuse of the diagnosis is underuse of it. This is a problem—particularly when the existence of the syndrome of early infantile autism is questioned (Masters and Miller, 1970).

Not all people reject the unitary behavior disorder of autism. Mildred Creak (1964) sees it imbedded in schizophrenia, while Lorra Wing (1972) views it as a distinct category altogether:

> Firstly, the symptoms of autism are different from those of schizophrenia. For example, delusions and hallucinations are important in the latter and never seen in the former, and the speech problems of autism are not at all the same as those found in some schizophrenic patients. Secondly, when autistic children grow up, they do not become schizophrenic adults. Thirdly, schizophrenic patients are more likely than average to have relatives who are also schizophrenic. Autistic children, on the other hand, have only the same chance of having a schizophrenic relative as the average (and some say the chance is less than average). The only similarity is that both schizophrenic adults and autistic children are very vulnerable to the effects of bad institutions, but this goes for other kinds of illnesses too. (pp. 4–5)

It is clear that there is a lack of concensus concerning definition of terms, which criteria is most important, and what criteria are needed to define levels of severity. A study by DeMyer, Churchill, Pontius, and Gilkey (1971) compares their own assessment policies with several widely used checklist systems. The systems evaluated included the Polan and Spencer checklist (1959), the Rimland E-1 and E-2 Scales (1964), the Lotter checklist (1966), and descriptive statements formulated by the British Working Party headed by Mildred Creak (1964). Comparison of these various scales revealed correlations significant at the .02 level in the .4–.6 range with a correspondence of 35%. According to this study, the Polan and Spencer and Lotter scales do not adequately differentiate between the *subgroups* of psychosis, as was intended by their designers. They do separate psychotic from nonpsychotic children. The DeMyer-Churchill Scale subdivided the diagnosed psychotic children into early childhood schizophrenia, primary autism, and secondary autism. Rimland's scale is still more specific (Douglas and Sanders, 1968; Davids, 1975). His definition of early infantile autism includes *only* what DeMyer and Churchill call *primary* autism. DeMyer et al. (1971) conclude that:

> Good agreement on diagnosis, even concerning subcategories of psychotic conditions in children, is common among people working in close collaboration, as in the case of DeMyer and Churchill. However, this agreement lessens considerably when diagnosticians without constant feedback compare diagnoses, even when relatively structured and standardized diagnostic systems are in use . . . any one of several instruments can at least . . . (differentiate) early schizophrenic and autistic children as a group from non-psychotic children. (Distinction of subgroupings) . . . can not be possible at present without a significant loss in reliability . . . All authors must include careful descriptions of subjects in clinical reports and research. (p. 188)

Eisenberg (1972) spoke to the issue of classification of this syndrome as it related to the importance of basing recommendations for treatment on disease process and possible response. A uniform pathophysiology for all affected with the syndrome is highly unlikely, and in addition to the progress made in the triaxial classification of childhood mental disorders (Rutter et al., 1969), the clinician needs to avoid preoccupation with a one cause, one cure paradigm.

THEORETICAL ADVANCES

Cybernetics

Advances in varied theoretical approaches to the syndrome include one application of cybernetics to the formulation (Kahn and Arbib, 1973). The issue of systems theory to the evaluation and treatment approaches will be discussed in greater detail in Chapter 3. Defects in "hardware" lead to malfunctioning, and in the human these would be organic deficits. In this system, adaptation is equivalent to the ordering and correlation of perceptions. Thus psychosis is a process-defect, not an end-product. Colby (1968) stated his views as follows:

> A majestic absurdity characterizes the classification system in psychiatry. Since there is such poor agreement among diagnosticians, the categories of classification are unreliable. And since there is little correlation between diagnosis, signs and symptoms, the categories are of doubtful validity. . . . Yet a more satisfactory taxonomy is crucial for clinical practice, and in particular for future research designed to yield dependable knowledge.
>
> Finally, little experimental work has been done in investigating childhood mental disorders from an information-processing standpoint . . . A variety of tests and experiments could be introduced while a child is playing with a computer-based system able to control symbols and objects. . .

For Kahn and Arbib (1971) this approach led to the conclusion that infantile autism resulted from an inherent deficit in adaptation, and long-term models could not be constructed. In contrast, the childhood schizophrenic has inherently adequate schemes, discordant with the environment, with subsequent long-term model deficiencies.

Numerical taxonomies have been used to classify children into subgroups using the Rimland checklist, comparing "Kanner's" versus "no Kanner's" and beginning with random classes. The conclusions of Prior et al. (1975) noted that three attributes differentiated classes: stereotypic behavior, indifference or resistance to social contact, and abnormal behavior in early infancy. The validity of classification was essentially best if age of onset and care features defined the subgroups.

PSYCHODYNAMIC THEORY

Somatic defense mechanisms characterize the infant, and there is no structure of a psychological nature to assist in organization and to differentiate stimuli. Mahler and Furer (1972) have described the crucial disturbance leading to childhood psychosis as a loss or lack of ability to utilize the empathic mother as an assistant to organization. In autism, the child cannot deal with the stimuli (Anthony, 1958) and de-differentiates, an absence of distinction between self and others. In concert with decreased body cathexes, this eventually leads to increased aggressive drive turned towards the self. It also leads to insensitivity to pain.

In regard to psychologic communication, King (1975) discussed the potential for double-binding (Bateson et al., 1956) by mothers who appear to be superficially warm but disguise coldness and rigidity. He concludes that the child wants to escape the mother because she does double-bind. The escape is by not responding to her. This escape behavior is described as being precognitive, primitive, and undifferentiated behavior characteristic of unorganized ego functions. It is adaptive, in an active sense, because it is considered to be a response to active trauma. This theory has been criticized by Drotar (1978) on the basis of failure to control for observer bias. It also speaks to the failure to consider changes in the repertoire of the infant and assumes a closed system of interaction, ignoring the role of father.

Ward (1970) concluded that the syndrome was a result of a "lack of a varying, novel, patterned stimulation in the child's developmental history" (p. 361). He felt that early infantile autism was a deviant style of ego development. This resulted in a "behavioral ago," made up of stereotypic activities which control the environment of the autistic child. This ego "was considered to be a successful adaptive position, enabling reduction of reality to dimensions more easily handled by the autistic child." Two subsequent critiques of Ward's theory appeared. L'Abate (1972) categorized seven major categories based on lack of consideration that autism has transactional interpretations (L'Abate, 1969). Rimland's reply (1972) was that there was no substance to the psychogenic hypothesis.

ETHOLOGIC THEORY

Basically and incompletely, ethology utilizes methods of observation of animals in attempts to clarify social encounters. The relevance of ethology to the study of psychiatric disorders has been extensively reviewed elsewhere, and the interested reader is referred to those sources (White, 1974; Morrison and McKinney, 1977). Film records of autistic children (Hutt and Hutt, 1970) led to conclusions that social encounters were frequently characterized by facial aversion. These "autistic" behaviors were subsequently noted to occur in normal children (McGrew, 1971). The most extensive treatise is that written by Tinbergen and Tinbergen (1972). These authors considered that components of social behavior and the situations in which they arose could provide possible clues with regard to etiology. Behaviors were classified as socially positive and socially negative, or "bonding" versus "rejecting." Correlations between the form of behavior, sequential association, function, and whether behavior was recognized as approaching or avoiding were rated according to intensity. The authors concluded that many autistic children suffered stress resulting from unresolved conflict. This conflict was between social frustration and fear of the unfamiliar. In children who are predisposed, the stress was a result of environmental factors, primarily parental behavior. Wing and Ricks (1976) has criticized this report. Schopler (1974) has cautioned against total acceptance of the theory. His words are:

> The message that Dr. Tinbergen appears to convey to clinicians, researchers, and parents who struggle with the very real problems of autistic children appears to be the following: childhood autism is whatever you believe it to be; the methodology is simple; assume that autism has its roots in normal development; redefine normal but shy children as autistic; have some pleasant interaction with such children and get them to act less shy. You now have a new approach to autism. If you need validation for any of this, don't look to confusing research, simply assert personal opinion. (p. 195)

PARENTAL AND FAMILY CHARACTERISTICS

One of the basic controversies in relation to etiology is focused on biologic versus psychologic causation when, perhaps, more emphasis needs to be placed on the complemental and interactional view of causation (Morrison and McKinney, 1976). Obsessive, highly intelligent, emotionally aloof parents were described by Kanner (1943) with later elaboration (1949) of their cold, formal, and humorless natures. Rank (1949), taking a psychoanalytic point of view, proposed that psychotic behavior in young children was

> a result of a special family constellation in which an immature narcisstic mother was not able to offer the infant in his early stages, an environment with an emotional climate, favorable for the formation and differentiation of the self and the establishment of the reality principle. The fragmented, scattered personality of such children is considered to be the result. Their retreat and withdrawal are understood as an escape from a dangerous world. (p. 138)

Escalona (1948) suggested that psychotic children had failed to repress psychic experience which normally should be unconscious. Mahler and Furer (1972) also hypothesized a fundamental breakdown in the mother-child relationship at the symbiotic state as a possible cause of autism. Pavenstedt (1955) described one etiological theory as a folie a deux between the child and mother. Szurek (1956) felt that the autistic child reacted as a magnifier for the disturbed personalities of both parents. Eisenberg and Kanner (1956) and Eisenberg (1957) suggest that an innate organic defect and characteristic environment in the family resulted in autism. Parental rage and rejection was postulated by Bettleheim (1959). Parental reinforcement of developing symptoms was characterized by Ferster (1961), with Clerk (1961) and Goldfarb et al. (1966) enumerating communication problems with mother and child and the mother's difficulty in managing aggressive impulses and subsequent severe anxiety as etiologic factors. Another psychoanalytic viewpoint described the syndrome as a shifting of cognitive development from exteroceptive to interoceptive ego after failure to establish oral primacy Knight (1963). Rosenberger and Woolf (1964) thought these children were overwhelmed by affection from mentally ill parents. Reises (1963) proposed that a state of emotional turmoil in the parents occurred during a critical period in infancy causing autistic behavior. Alpert (1964) and other clinicians have based treatment procedures on a view of the causation of infantile autism by maternal deficiency. Lowe (1966) found no differences between autistic and schizophrenic children's parents except for a higher educational attainment by mothers of autistic children. Ogdon et al. (1968) found significant differences between parents of autistic children and parents of other groups in terms of intelligence and education. Wolff (1971), using Rimlands' retrospective checklist Form E-1 for distinguishing between autistic and schizophrenic disorders, obtained results that contradict the hypothesis that autistic children have highly intelligent, unemotional parents who caused the development of the autistic behaviors. Superior socioeconomic status, education, and intelligence have been noted (Lotter, 1967), but other researchers have found no difference in socioeconomic status (Ritvo et al. 1971). Rimland (1964) felt that the superior intelligence of parents could contribute to the syndrome by having children with high capacities for intelligence and increased vulnerability to stress.

The study of parental characteristics had begun to show multiple theories of causation, and more rigorous scientific work needed to be developed to clarify several issues. One of the most extensive investigations was that reported by DeMyer (1975). Parents of normal, subnormal, and autistic children were matched on the basis of religion, race, and socioeconomic status, while the child subgroups were matched on the basis of age, sex, number in sibline, and ordinal position. Parental practices, rated by use of 21 rating scales, showed that the parents of autistic and normal children were similar in overall scores of infant stimulation, while parents of subnormal children were more abrupt and less appropriately responsive to the crying of the infant. These parents also reported less tactile involvement with their subnormal children. Both subnormal and autistic group parents appeared to set logical goals for their children. The Minnesota Multiphasic Personality Inventories (MMPI) was used as a measure for parental pathology. No difference was seen among parent groups, even when the parents were subdivided on the basis of the presence or absence of organic factors in the children.

In a sample of parents of autistic children, free of overt neurologic disorder and with normal nonverbal intelligence, several studies were performed to assess parental characteristics (Bartak et al., 1975); Cox et al., 1975). The control group was a group of children with severe developmental receptive language without other characteristics of autism. The only significant difference in social characteristics was that fewer children were born to mothers of the autistic group. No significant differences were seen in parental psychiatric disorder, family stress, parental warmth, parental neuroticism, and obsessional characteristics. Emotional expressiveness was essentially the same, with the only significant difference between the groups that of maternal self rating–mothers of dysphasic children reported less expressiveness. Parental sociability ratings showed a greater availability of close kin, probably related to larger family size, and parents of autistic children joined in events with friends more frequently. One group of researchers (Kliman, Burain and Frazer, 1978) have presented data which has led them to describe a profile called "*The Three Generation Psychosis-Making Machine*". This is noted in their definition as

> a vertical epidemic of narcissistic depletion and depression, leading to early childhood psychosis in the third generation.

This conclusion was based on impressionistic profiles of environmental and parental influences of subsequent outcome.

A correlative study, examining psychological characteristics, neurologic status and symptoms of the child showed no increase in neuroticism, Netley et al. (1975). However, a cognitive disorder was found in mothers of the autistic children. Although Schopler and Loftin (1969) think this could be related to anxiety, guilt or confusion, consideration may need to be made for genetic or biochemical mechanisms and parental depression. Goldfarb et. al. (1976) used structured interviews to appraise psychiatric disturbance in parents of psychotic children. Previous findings were replicated noting no differences between parents of organic and nonorganic children. The parents did show a trend to more psychopathology than a group of non-patient adults, but interpretation of the significance of this finding is unclear. As noted by Reichler and Schopler (1971).

> even the most potent environmental effects on the child occur at the perceptual level and not at the level of a construct as complex as human relatedness. (p. 293)

LANGUAGE DEFICITS

Many authors now postulate that central language deficits or developmental aphasias may be sufficient and necessary causes for the behavior of autistic children (Rutter, 1965, 1974; Wing and Ricks, 1976; Creak, 1972; Ornitz et al., 1977). This view has been investigated in a critical review of speech and language retardation by Cantwell and Baker (1977). These authors note that group comparisons of language-and-speech-disordered children show increased psychiatric disorder, that no particular disorder is associated with the disorders, that more global language disorders are more likely to have psychiatric problems, and that comprehension defects and severe receptive language impairment are associated with social relationship defects and an autistic picture. Whether this language deficit is central or whether perceptual disturbances of secondary to homeostatic regulatory mechanisms lead to varied cognitive deficits (Weber, 1970; Bryson, 1972; Ornitz and Ritvo, 1968) remains an unanswered question.

Several studies have attempted to clarify the spectrum of language disorders in autistic children as well as specific language disabilities basic to these children. Speech delay is not often a concomitant (Lotter, 1966; Cunningham, 1968). In the autistic child, understanding of language is seriously impaired, subsequent development of speech includes performance but little spontaneity, and speech is slow to develop (Wolff and Chess, 1965; Rutter, 1966). One study compared a group of children with a developmental disorder of receptive language and subgroups within those children with and without the behavioral syndrome of autism (Bartak et al., 1975). None of the children had hearing loss, mental retardation, or demonstrated neurologic dysfunction. The children diagnosed as autistic showed more extensive disabilities, severe defects in comprehension, and defects in social use of language. Little difference was noted in patterns of nonlinguistic skills. Organic dysfunctions related to aphasia and autism specifically in the brainstem and midbrain involving amine pathways have been defined by Cohen et al. (1977) and Simon (1975). Simon considers a possible etiology of mild asphyxia during birth, an event noted in animal populations to affect particularly the inferior colliculus. In primates, Denny-Brown (1962) characterizes the behavioral defect secondary to asphyxia as "a gross reduction in all types of externally directed behavior" (p. 537). Similar behavioral manifestations in the primate have been described by Windle (1969) and Myers (1972).

As has been noted, disturbances in motor control (bizarre gestures, problems of motor imitation, lack of gross motor control) are distinguishing characteristics of these children (Wing, 1976; DeMyer, 1976). Focus on motor control is also thought to be helpful in the development of cognitive skills (Schopler and Reichler, 1971; Lovaas et al., 1966). Bram et al. (1977), using behavior modification techniques with a hyperactive autistic child, suggests an inverse relationship between gross motor dysfunction and verbal learning. The authors' hypothesis notes the possibility that control of motor behavior releases energy to enable a focus on verbal behavior. The motor system might be dominant and thus prohibit or interfere with verbal processing; and excess of motor system energy blocks activity in the verbal system.

GENETIC INVESTIGATIONS

As has been noted, Kanner suggested that autism, because of its early onset, could be the result of an "inborn defect." Suspicion of hereditary influences continues, based on several observations. Although childhood psychosis is considered rare, occurring in approximately one of every 2,600 children, psychosis with early onset is approximately one in 10,000 children (Rutter, 1966; Lotter, 1966; Treffert, 1970). However, the imprecision of diagnosis, the heterogeneity of the psychoses, and the use of comparison groups of less disturbed children have been noted to lead to inaccurate rates of incidence and prevalence.

In general, genetically determined pathologies involve chromosomal abnormalities (deletors or additions), cytogenetic abnormalities (error in early cell division or in formation of sperm or egg), polymorphisms (individual variations arising from mutations and then maintained), recessive alleles (genes on each part of a pair of chromosomes at the same position), or polygenic effects (several genes with little effect, not detectable, simultaneously combining with environmental factors). As has been pointed out by Hanson and Gottesman (1976), claims for genetic etiology only imply "that genetic factors are necessary for the development of the disorder." There is no claim that these factors are sufficient in themselves.

Chromosome Studies

Trisomy of chromosome 22 has been reported in an 8-year-old schizophrenic boy and in 13-year-old twin girls (Turner and Jennings, 1961; Biesele and Schmid, 1962). Ten psychotic children were studied by Book et al. (1963), and no consistent chromosomal abnormalities were found. Eleven children diagnosed as having early infantile autism, and selected to be within the "nuclear group" of autism (Kanner and Eisenberg, 1955), were studied. There were unusual karyotypes of three subjects, in that each had Y chromosomes longer than chromosome 21 (Judd and Mandell, 1968). As males predominate in early infantile autism, further study was done and it was found that one father had a large Y chromosome. It was the conclusion of the authors that the finding represented a normal inherited chromosome variation.

Although the earlier work of Saladino Sankar (1969) on cytogenetics in childhood schizophrenia failed to show any chromosome abnormalities, they later reported the incidence of breakage of leukocyte chromosomes in autistic children to be 3.5 times greater than in nonautistic children (Sankar, 1971). Atypical lymphocytes and increased plasma cells were found by Fowle (1968). Chromosome studies in four children using strains specific for banding was initially reported to have shown no abnormalities.

A more recent study in a 14-year-old girl, diagnosed autistic with severe mental retardation, showed an extra chromosome, a translocation between chromosome 22, and a D chromosome with break points. However, the authors also note that the syndrome receded markedly from age 5 (Hanson et al., 1977).

As has been noted, males have been shown to be affected in ratios of 4.8:1 (Spence et al., 1973), 0.4:1 (Kanner, 1954), and 2.5:1 (Lotter, 1966). Although an X-linked inheritance model has been proposed, this has not been borne out by predicted ratios of males to females.

Family Studies

In adult psychiatric disorders, specifically schizophrenia and the major affective disorders, genetic contributions have been well established by adoption, family studies, and twin studies. Morbidity risks to relatives are noted to be related to the number of other affected relatives and the severity of the illness of the proband (Gottesman and Shields, 1972; Hallgren and Sjogren, 1959; Heston, 1966).

Familial factors which have led to the suspicion of genetic influences are those of a reported 25% incidence of delayed speech in families with an autistic child and a rate of autism in siblings which is 50 times greater than that of the general population.

Twin studies of monozygotic and dizygotic pairs have shown rates of concordance of 71% and 17%, respectively (Kallman and Roth, 1956). Rutter (1967) reviewed the cases of 14 monozygotic pairs and four dizygotic pairs and showed concordance rates of 86% to 25%. These findings have been questioned due to possible experimental bias. Another concordant pair of monozygotic (MZ) twins has been reported (McQuaid, 1975). A dizygotic (DZ) twin pair who also have a first cousin with the syndrome is known (Kotsopoulos, 1976). Twenty-one twin pairs with an MZ:DZ ratio of 11:10 showed 15 children diagnosed autistic. Four of the MZ pairs and none of the DZ pairs were concordant for autism. A cognitive disorder was seen in nonautistic cotwins monozygotic (82%), fewer in the dizygotic pairs (10%). In three of five MZ pairs concordant for cognitive defect, the autistic child was noted to have experienced biologic insults (Folstein and Rutter, 1977).

Twins are more at risk for severe mental retardation and brain injury (Allen and Kallmann, 1955). If early infantile autism were due to a dominant mutation, concordance rates for monozygotic twins would be 100%.

To date several pairs of siblings have been described (Van Krevelen, 1963;

Rimland, 1971); a follow-up study of one sibling pair reports that the male showed progressive deterioration while the girl showed stable development (Verhees, 1976). Intrafamilial incidence studies, focusing on demographic factors, showed no significant differences from the central group. Family histories have veen shown by some authors to include a significantly greater incidence of alcoholism, mental retardation, and psychiatric illness (Lobascher et al., 1970).

ASSOCIATED GENETIC STUDIES

The establishment of dominance and distribution of handedness in autistic children has been shown to differ greatly from normal children. A high percentage of the autistics were non-right-handed. However, the genetic significance of this finding is unknown since relatives had not been evaluated (Colby and Parkison, 1977).

Dermatoglyphic abnormalties have also been shown in autistic versus normal children. A variety of ridge pattern intensity and distribution differences, digital and palmar ridge counts, and quality of ridge formation differences were seen. These findings were distinct from other subgroups of psychopathology. The author concludes that congenital factors exist in the etiology of the disorder (Walker, 1977a).

Stigmata that might be associated with known chromosomal disorders were not identified in a group of 74 autistic and 74 control subjects (Walker, 1977b). Low seating of ears, syndactylia, and hypertelorism were increased in the autistic subjects. This has been noted by other authors (Mnukhin and Isaev, 1975).

Postulates that some genetic abnormality is causal for the syndrome of autism remain such. No direct evidence has yet been found for a singular etiologic, genetic factor.

IMMUNE RESPONSE STUDIES

Since autism has been linked to other diseases, including rubella, a study was designed to determine the response of autistic children to rubella vaccine (Stubbs, 1976). Control children had detectable titers. The autistic children had a probability of .40 undetectable titer, a finding reported to be similar to the responses of prenatal rubella children. The extension of study in this area was to cellular immune functions. The postulated defect is that of thymic-derived lymphocytes (T-cells) which could make a fetus more vulnerable to viral attack and later dysfunction. Preliminary results suggest that the autistic child has a relative T-cell deficiency. This deficiency may be a genetic predisposition, or certain viruses may interfere with differentiating cells (Stubbs et al., 1977).

It is known that various neurologic diseases are accompanied by elevations in cerebrospinal fluid immunoglobulins. There have been no studies of these immunoglobulins which would indicate abnormalities in the autoimmune system (Young et al., 1977).

NEUROCHEMICAL STUDIES

The burgeoning literature with regard to neurochemical studies reflects the continuing development of more sensitive and specific assays. Several words of caution are in order prior to the review of these studies. In many cases, matched control groups were not tested. Numerous variables such as stress, diet, medications, or hospitalization were often not considered in early experimental designs. Current measures are often those utilizing peripheral fluids such as urine and blood in attempts to measure whole brain activity. These studies, however, will provide future directions for the study of possible biologic etiologic factors.

Elevated blood serotonin concentrations were reported in 25% of the autistic children studied by Schain and Freedman (1961). Sankar (1971), studying serotonin and norepinephrine uptake by erythrocytes and thrombocytes noted the lowest levels of serotonin uptake in autistic children. Norepinephrine uptake by platelets did not show significant differences of interest; increasing age of the subject was correlated with increased serotonin uptake. Other studies noted increased serotonin *and* platelet cells in blood (Ritvo et al., 1970). Curious in these findings was an increased variability of platelet serotonin, but further studies showed no circadian rhythm and the authors concluded that blood serotonin levels could represent something other than the primary disease process (Yuwieler et al., 1971).

Possible correlation of autism with increased release of C-5 hydroxytryptamine and the Rimland E-2 score was noted to exist by other authors (Boullin et al., 1971). This work with experimental design controlling for multiple variables was extended by Yuwieler et al. (1975), who found no differences in serotonin uptake in any of the populations studied.

Investigators in Japan studied three groups of children: infantile autistics, a group comprised of various neurologic and psychiatric disorders, and age-matched controls. Higher platelet serotonin was found in the younger autistic group (Takahashi et al., 1976). Serotonin has been reported to rapidly decrease in the first 2 years of life and then slowly decrease to adult levels by age 14 (Ritvo et al., 1971). Apparent confirmation of high platelet serotonin, now in many studies, is noted by other authors (Hanley et al., 1977). Other investigators, however, have not been able to replicate these findings (Campbell et al., 1974, 1975).

Another measure of serotonin activity includes urine excretion of a metabolite of serotonin, 5-hydroxyindoleacetic acid (5HIAA). Tryptophan, the dieatry precursor of serotonin, was given to patients, and Sutton and Read (1958) found decreased 5HIAA in one autistic child. No differences in urinary 5HIAA following tryptophan loading were reported by other authors (Shaw et al., 1959); Udenfriend et al., 1955). Probenecid, which blocks movement of 5HIAA from the cerebrospinal fluid, was administered to various groups, and significant differences were found between decreased 5HIAA in the autistic group and other diagnostic categories (Cohen et al., 1977).

The probenecid technique was also used by the above group of investigators to study cerebrospinal homovanillic acid (HVA), a dopamine metabolite. No significant differences were seen across the patients studied.

Norepinephrine (NE), a sympathetic nervous system transmitter, and the enzyme dopamine-B-hydroxylase, which converts dopamine to norepinephrine, have been studied in autistic children and their families (Lake et al., 1977; Goldstein, 1971; Coleman et al., 1974). Plasma levels of norepinephrine were increased in patients, but dopamine-B-hydroxylase (DBH) has been variously reported by the above authors as being significantly lower in autistic patients and healthy relatives, lower in autistics, or not different from control or schizophrenic children.

In patients, monoamine oxidase (MAO), an enzyme thought to influence binding of serotonin or other amine neurotransmitters, has been found to be not significantly different from that found in normal children or adults (Cohen et al., 1977).

Catechol-O-methyltransferase (COMT) plays an important role in the degradation of released catecholamines. Childhood schizophrenics showed lower COMT activity (Walker et al., 1976), a finding at variance with increased COMT activity in adult schizophrenics (Matthysee and Baldessarini, 1972). O'Brien et al. (1976) noted erythrocyte COMT activity in autistic children to be within the normal range. A sex difference was noted in that autistic females had higher COMT activity than control females or autistic males.

Cholinesterase activity, erythrocyte (true) and plasma (pseudo), when studied in schizophrenic and control groups, was not significantly different, but an inverse correlation was found between acetylcholinesterase activity of erythrocytes and platelet serotonin uptake (Lucas et al., 1971). This apparently is an isolated finding which has not been replicated, and its significance is unknown.

NEUROENDOCRINE STUDIES

Free fatty acid (FFA) metabolism is affected by many factors. The catecholamine B-adrenergic receptors exert an influence on mobilization of FAA (Pelkington et al., 1966). In turn, central nervous system factors alter FFA (Havel and Goldfien, 1959; Cobb et al., 1964). Insulin, glucose, and salicylates, among others, decrease FFA, while increases in FFA can be related to thyroid and growth hormones, heparin, and fasting. In adult schizophrenics, insulin increases

FFA, a paradoxical response (Mueller, 1962). In psychotic children the most frequent result with insulin injection was a significantly lower plasma FFA, with higher FFA reported before and during glucose administration. Consistently, variability in plasma FFA was seen in the psychotic group (DeMyer et al., 1971).

Insulin induced hypoglycemia affects subsequent plasma concentrations of cortisol and serum concentrations of growth hormone (GH) and glucose. Resting levels of all measures were considered normal for the autistic children, a finding previously reported (Goodwin et al., 1971). Following insulin administration, recovery of glucose levels was slower in the autistic group. There was rapid and sustained response in production of cortisol. No significant differences were found in growth hormone (GH) among the groups (Maher et al., 1975). Early results of subcutaneous insulin tests, although questionable due to technical difficulties, noted that 40% of 38 patients evaluated showed flat oral glucose tolerance curves (Simon and Tarnky, 1966).

Plasma 17-hydroxycorticosteroids (17-OCHS) have been noted to be abnormal in responsiveness to pyrogen and in circadian rhythm in certain central nervous system disorders (Yamazaki, 1970). When these procedures were done with autistic children, there was no normal circadian rhythm, although the children responded to the pyrogen test, or the stress response (Yamazaki et al., 1975); 21% of a total of 16 patients diagnosed as psychotic, childhood schizophrenic, or autistic were reported to have decreased 17-ketosteroids and 17-hydroxycorticosteroids.

If alterations occur in the transmethylation of norepinephrine, where methylated amines are synthesized endogenously, these subsequent amines could induce hallucinations. Bufotenine (N,N-dimethyl serotonin) has been studied in regard to its possible role in adult schizophrenia (Wyatt et al., 1971). N,N dimethyltryptamine and 5-methoxy-N,N-dimethyltryptamine were also noted to be excreted in the urine of adult chronic schizophrenics (Tanimukai et al., 1970; Narasimhachari et al., 1973). The extension of these findings in consideration of their possible presence in psychotic children followed. It has been found that bufotenine concentrations in psychotic and normal children given monoamine oxidase inhibitors were similar, although several technical difficulties existed (Perry et al., 1962; Perry, 1963). Initial evaluations by Himwich et al. (1972) noted that variable concentrations of bufotenine were found in the analysis of 24-hour urine samples collected from the autistic group. A matched group of normal children with the same methodology showed no excretion of bufotenine. These findings were the basis of three subsequent investigations (Narasimhachari and Himwich, 1975). Of five autistic children positive for bufotenine, 27 relatives free of gross psychotic illness were also examined. Of these 27, 13 excreted bufotenine. An additional 18 autistic children were studied, and six were positive for bufotenine. The conclusions of the researchers considered that the results may not reflect a disease condition or that the normal adults may be carriers of a metabolic defect indicating a genetic basis for the syndrome of autism.

DMPEA (dimethoxyphenylethylamine), another result of faulty transmethylation of catecholamines, is also closely related to mescaline. Identification of this compound in the urine of adult schizophrenics (Friedhoff and Van Winkle, 1962) was based on the appearance of a pink spot which appeared when DMPEA was exposed to specific reagents. In childhood psychotics, three authors studying 37 patients could not demonstrate the presence of DMPEA (Perry, 1963; Faurbye and Pind, 1966; Himwich et al., 1972). Thin layer chromatography methodology identified the presence of DMPEA in 75% of childhood schizophrenics and 83% of normal controls (Widelitz and Feldman, 1969). The presence of the pink spot has been subsequently noted in tea drinkers, as a result of metabolites of phenothiazines and is not excreted by persons on a plant free diet.

Another factor, described and identified as a mauve spot on chromatographs of urine (Hoffer and Mahon, 1961), has been noted to be present in 24.5% of "disturbed children" (O'Reilly et al., 1965). Later studies noted negative results from 28 childhood schizophrenics (Greenbaum, 1970).

Nicotinic Acid

Some elements of this biochemical pathway provided initial direction for the treatment of schizophrenics (Hoffer and Osmond, 1966). Nicotinamide, as described in Chapter 2, has been reported to produce no success in autistics (Greenbaum, 1970), results not in concert with the findings of Rimland (1973). Profiles of autistic children show increased 4-hydroxyhippuric acid, B-(3-hydroxyphenyl)-hydracilic acid, and indoxyl sulfate (Mrochek et al., 1973). Decreased amounts of N^1-methyl-2-pyridone-5-carboxamide (2-PY), the end product of the nicotinic pathways, has been reported in autistics (Lis et al. 1970). Lis et al. (1970) have also shown excessive excretion of 4-hydroxyhippuric acid in the urine of autistic children. The significance of this is that if mechanisms of detoxification are not functioning, toxicity to these substances may occur. These findings may indicate an abnormality in enzyme, a structural defect leading to release of cerebral toxins, or the findings may be peripheral to the cause of the disease.

CLINICAL CHEMICAL STUDIES

Creatine phosphokinase (CPK), found in its greatest concentration in muscle, is an enzyme. It catalyzes the formation of adenosine triphosphate and creatine from adenosine diphosphate and creatine phosphate. Increases in blood levels of this enzyme have been found, for example, following intramuscular injection

(Sidill et al., 1974), epilepsy (Belton et al., 1967), and acute psychosis (Meltzer, 1974). A varied group of 96 children including aphasic, atypical, normal, and autistic subgroups showed no significant differences in CPK levels (Cohen et al., 1976).

Although no statistical comparisons have been given, several studies have noted lower erythrocyte potassium and magnesium levels in autistic children (Saladino and Sankar, 1969). Inorganic plasma phosphate has been noted to be increased also (Sankar et al., 1962). No differences in serum magnesium levels have been shown (Gittelman and Cleeman, 1969).

Amino Acids

Identification of proteins (comprised of amino acids) has led to the isolation of several proteins thought to be specific for the nervous system. Their functions include neuronal communication, structuralization, and nutrition. More specifically, S-100 has been related to learning. If antibodies to S-100 are injected into animals, the rate of learning is impaired. Phenylketonuria, a disease characterized in part by mental deficiency, involves the amino acid phenylalanine. The amino acid glycine has been reported to inhibit transmission in neurosis of the spinal cord. Two amino acids, aspartate and glutamate, are thought to function as neurotransmitters.

In relation to amino acid function or dysfunction, one author noted that some children with autism excreted increased amino acids. Some amino acid abnormalities can be shown to contribute to structural changes in protein of hair. Winther and Bundgaard, (1968), examined the hair amino acids of 61 autistic children and 15 controls. No amino acid abnormalities relating to hair protein were found.

PHYSIOLOGIC MEASURES

Sleep Functions

In the adult schizophrenic, evaluation of the recovery function of sensory evoked responses suggest deficits in sensory input (Ornitz, 1969). The advantages of sleep studies are thought to include control of the variable of attention and the correlation of rapid eye movement (REM) sleep with modulation of various forms of sensory input. In the initial attempts at studying perceptual reception in autistic children, the authors noted that these children had more sensitive recovery ratios to total stimulus patterns (Ornitz et al., 1972). Previous work had shown that normal children had recovery ratios during REM sleep characterized by greater stability (Ornitz, 1971). The hypothesis of disturbance of regulation of sensorimotor integration through central vestibular functions was then studied in autistic children (Ornitz et al., 1973) as well as relationship to motor and sensory phases seen in REM sleep (Pompeian, 1967). Results showed that with vestibular stimulation, the number of eye movements was significantly decreased in autistic children in comparison to normal children. Expansion of this work, considering the developmental aspects of REM in children (initial estimates of REM periods at birth is approximately 50% with differentiation and decreased length of REM beginning by 3 months of age [Parmelee and Stern, 1972]), concluded that autistic children had immature patterns of REM sleep (Tanguay et al., 1976). Conclusions made by the authors considered that these results reflected abnormal brain functioning, possible related to the pontine reticular system (Hobson et al., 1975).

ATTENTIONAL FUNCTIONS

Continuing evidence for organic brain lesions was reported by Student and Sohmer (1978) who recorded auditory nerve and brainstem evoked responses. Out of 15 children with autistic traits, five had peripheral cochlear hearing loss. The remaining ten children had longer latencies of the compound action potential of the auditory nerve. Possible organic lesions could be in the area of the cochlear nucleus, superior olivary complex, and inferior colliculus as these are areas from which response waves are obtained (Starr and Hamilton, 1976).

Intake and rejection of sensory input, or eliciting direction of attention, has been correlated with cardiovascular measures (Cohen and Johnson, 1977). Emotional and attentional states are reflected in peripheral blood flow measures, with external attention foci associated with peripheral sympathetic nerve discharge and internal attention foci associated with epinephrinelike responses (Williams et al., 1975; Bittker et al., 1975). The results obtained from the autistic children suggest that this population cannot modulate autonomic arousal and are in a constant state of sensory arousal. An unusual sensitivity to sensory stimuli (Goldfarb, 1963; Anthony 1958) does not appear to be sufficient to explain the motility patterns of these children (Ornitz, 1974); this may be partially accounted for by dysfunctions in cerebellum, brain stem, and central connections of the vestibular system.

ELECTROENCEPHALOGRAPHIC FUNCTIONS

The effect of stimuli on the nervous system and subsequent behavior exhibited by autistic children has been studied through the use of electroencephalography (EEG). In 1964, Grey-Walter noted an absence of the "expectancy wave" in the frontal cortex of these children. Conflicting reports have noted abnormal EEG records (Kennard, 1953; Hinton, 1963; White et al., 1964; or normal EEG

618·92898

Research

records (Eisenberg and Kanner, 1956; Ward and Hoddinott, 1962). A predominance of low voltage, fast activity in various situations of stimulation lends support to the hypothesis of a constant state of arousal (Hutt et al., 1964, 1965).

The alpha rhythm, a measure of stimulation, and speed of reaction time which is independent of alpha blocking (Hermelin and Venables, 1964) are recorded from the occipital region and have been regarded as a possible measure of the state of arousal (Lindsley, 1960). Pairing auditory stimulation with EEG recordings noted more arousal in the autistic children, but no difference was seen in responsiveness to light among autistic, mongoloid, or normal children (Hermelin and O'Connor, 1968). Similar results have been noted by Small (1971). Further quantification of resting EEG data in seven autistic and seven age-matched control groups has noted no group variations of significance in mean integrated voltages or coefficients of variation (Small, 1975). However, significant differences were found in mean integrated voltages between the right and left hemispheres, with the autistic children showing no differences and the normal children having higher values on the left side. Little periodicity was seen in the normals, but five out of seven autistics had prominent evidence of periodicity. The remaining two children were considered to have patterns which resembled those seen in the normal children and were classified as high functioning.

Visual analysis of EEG records is fraught with technical difficulties. Another computerized study, including placebo, administration of trihexyphenidyl alone, and then in combination with thiothixene, has been reported (Simeon and Itil, 1975). Mean maximum daily dosage was 27 mg, and mean optimum daily dosage was 14 mg. In the group of psychotic children (infantile autistics, organic psychoses, childhood schizophrenics), pretreatment records showed less 8–10 cps, 10–13 cps, and 13–18 cps activity than in normal children. Less slow and more fast activity and higher average frequency and frequency deviation was also seen in the psychotic children. In comparison, after 4 weeks of drug treatment, increased fast theta and slow alpha and decreased beta and fast alpha was found. A trend to decreased average frequency and frequency deviation with increased average absolute amplitude and amplitude variability was also noted. Thus, 4 weeks of drug treatment appeared to normalize brain function of the psychotic children. Defective hemispheric specialization, present in some autistic children, may indicate defective brain maturation.

NEUROPATHOLOGIC DISEASE STATES AND AUTISM

Postulates have been put forth to explain causation of the syndrome of autism on the basis of a "slow or active" virus. Most cases reported below fulfill Kanner's or Ornitz and Ritvo's (1976) necessary and sufficient symptoms for diagnosis of the syndrome.

A high prevalence of autism has been noted to be associated with congenital rubella. The appearance of the autistic syndrome was considered to be a consequence of the invasion of the central nervous system and the panencephalitis by the rubella virus (Desmond et al., 1967; Desmond et al., 1970; Chess, 1971; Townsend et al., 1975; Weil et al., 1975; Chess, 1977). The most extensive follow-up study, involving 205 cases of congenital rubella, was done by Chess (1977). The prevalence rate of both the partial and complete syndrome was 741 per 10,000. Cases with partial or complete autism syndromes (17) and children with features of the syndrome (four) were evaluated approximately 4 to 5 years after initial examinations. Using criteria for improvement, including communicative nonverbal or verbal language and affective contact with others, three recovered cases out of the ten original complete autism syndrome cases were noted. Similarly, three cases were noted to have improved out of an original seven cases of partial autism syndrome. Further correlations showed a more severe degree of mental retardation associated with worsening or no improvement at follow-up. No association was seen with degree of auditory or visual impairment and subsequent outcome. The possibility exists that a "slow" virus can be associated with the development of autism based on the appearance of four previously undiagnosed cases at the follow-up period.

Cytomegalovirus (CMV) has been discussed as being a possible candidate compatible with the development of the syndrome (Stubbs, 1978). This one case, a 17-month-old male, was referred for symptoms suggestive of autism. At 5 months of age, no response was observed in audiologic assessments. Complete absence of both left and right acoustic reflex was defined at 11 months of age. Normal ophthalmologic evaluation at 9 months noted less visual alertness than that present at 6 months of age. Enlarged spleen and liver was present through 4 months with a below third percentile in weight also noted by the fourth month. Decreased social responsiveness and poor eye contact were quite apparent by the time of the evaluation at 17 months of age. The author interprets his findings as possibly being related to the effect of the CMV encephalitis on the auditory and motor areas as well as the association areas of the visual cortex.

Neuropathologic changes in cases of autism were reviewed by Darby (1976). The author cautions the reader in regard to confusion in terminology but relates the syndromes on the level of behavioral similarities. Six out of 33 cases were reported to have no significant pathologic findings. Six cases implicated cerebral lipoidosis with onset of the syndrome after age 2. Although only two cases of autism were associated with tuberous sclerosis, this author has noted a clear association in three additional cases. In interpreting data from all possible associations of organic factors with autism, one must be careful and consider the populations studied, possible selection of specific cases which could slow the association, and need for study of closely monitoried control groups.

DEPRIVATION AND AUTISM

This section will discuss a previously undescribed syndrome, clinically indistinguishable from the symptom complex of autism, in children who have suffered severe emotional deprivation and emotional isolation. The work was done by Morrison and Lubinsky and is reported here. Initially many studies of maternal deprivation have revealed devastating consequences for subsequent development. The behavioral abnormalities shown by these children present particular therapeutic difficulties. Rate of recovery, response to treatment, and prognosis all differ from the syndrome of "classical" autism, making differentiation imperative in planning for treatment and rehabilitation.

In attempting to define the syndrome presented by our patients, we found that a great deal of confusion attended the concept of maternal deprivation. Definitions of the syndrome of maternal deprivation have included broad, all-inclusive descriptions of deviation from normal patterns of maternal care, and have attempted to delineate basic variables related to the development of the syndrome. For example, Brownfield (1965) states that social isolation entails only the elimination or reduction of communication through the senses of one individual or group with other individuals or groups. He also defines the existence of sensory deprivation when there is a great reduction in situations of normal sensory stimulation.

Review of the literature, which deals with the effects of severe isolation and deprivation, reveals a need for clarification of definitions. For the purposes of this section, we shall employ the work of Ainsworth and Bowlby (1954) which discussed the strategies for the study of the consequences of separation. Their initial hypothesis was that "actual physical separation from the mother, to the extent that it involves privation or deprivation of a relationship of dependence, will have an adverse effect on personality development" (Bowlby, 1952). They went on to state three conditions in which the dependence relationship would be inadequate. The child may never have had any relationship with a mother-person; the relationship with the mother-person was discontinuous; or the mother-person relationship was variable. Separation is implied by the first two conditions, either on the basis of loss (which is considered to be deprivation) or through absence (considered to be privation).

The following classification for defining the conditions of separation of the child from its mother were suggested. Separation from the mother before a stable and secure relationship has been established with a lack of subsequent opportunity to form a stable relationship with any one mother-figure is classified as complete privation. The most severe case of deprivation is that of separation from the mother after a stable and secure relationship has been established and before the child is old enough to be independent of the mother with the original or a substitute figure. There also can be severance of the relationship but a subsequent opportunity to form a stable and secure relationship with the substitute mother. Despite the provision of a substitute figure, there may be a temporary deprivation through the interruption of the original relationship. Although the authors listed other classifications, our sample is composed primarily of children who were subjected to complete privation and severe deprivation, with occasional cases of temporary deprivation.

The professional literature abounds with reports of experimental studies which investigate the deleterious effects of deprivation on later behavior. Most of the work has been reported in various animal species since it is considered unethical to utilize humans in the study of these conditions. Thus, in our clinical work, we are often restricted to case histories, fortuitous observation, and retrospection. While data collected through such methods may not be ideal, we believe such reports have significant research and clinical value.

The clinical literature notes that deprivation, or reduced stimulation, has consequences for both emotional and intellectual development (Lewis, 1954; Burlingham and Freud, 1944; Goldfarb, 1955; Spitz, 1949; Thompson, 1966; Freedman, 1975). Lack of environmental stimulation in many species has been noted to lead to deficits in perception, social behavior, activity level, affect, motor coordination, and intelligence (Evans, 1941; Hamburg 1970; Reisen, 1961). The development of social competence and the effects of early social environments on development have been the focus of many investigators who have designed deprivation studies using the nonhuman primate. Total social isolation, or the primate deprivation syndrome, results in behaviors characterized by a lack of motor integration, communication difficulties, excessive arousal, and abnormal movements or posturing (McKinney, 1974; Harlow et al., 1965). The age at which the animal is placed in isolation and the length of isolation are important factors in the degree to which abnormal behaviors are produced and the length of time for which these deficits persist. The fact that this syndrome has been compared to psychosis and autism indicates the severity of the disorder but also points out the need for further study. If an animal who has been reared in social isolation is subsequently placed in social situations with age-mate peers, there is evidence of absent or inappropriate social interactions with inappropriate aggressiveness and self aggressiveness, behaviors which are not often seen in the normal animal (Harlow et al., 1969; Harlow et al., 1966).

Many authors have postulated that the behavioral abnormalities produced in these animals are the results of learning deficits in critical periods. However, these theories have not been supported by the work reported in rehabilitation of the isolation syndrome in the primate (Harlow and Suomi, 1971; Suomi and Harlow, 1972; Suomi et al., 1972; Suomi, 1973). Space does not permit detailed discussion of the development of this syndrome in an animal model, and the interested reader is referred to comprehensive reviews of this work (McKinney, 1975; Morrison and McKinney, 1976).

A corollary to this animal work exists in those cases of social isolation and deprivation reported in the human literature (Casler, 1961; Yarrow, 1961). The concept of feral man, or wild man, was first introduced by Linnaeus in 1758 when he presented the cases of nine children who had been found/captured in a feral state, and raised afterwards. Thirty-one cases, together with their histories and the details of their behavior after their "capture" by society, were described by Zingg (1940). One of the most detailed of those case reports was that of Victor, the wild boy of Aveyron (Itard, 1932). Although many of the cases are poorly documented, and their findings have been questioned, it is clear from these cases that social deprivation and isolation from normal human contact was devastating to their subsequent development. Thus, when we began to review the cases of the children who will be described here, we focused on the history of their social development and background during the classification process. This, in turn, led to the results and hypotheses reported in this chapter.

Initially, a total of 1,224 children who had been admitted to a residential facility for care of moderate, severe, and profound mental retardation (defined as intelligence quotient of less than 50) were studied. This was an attempt at classification on the basis of genetic, etiologic, and diagnostic criteria (Kaveggia et al., 1975). During the 6-year period of study, the evaluations consisted of detailed gestational, genetic, parturitional, and neonatal history, family, medical, and developmental histories, and detailed physical examination including biochemical screening on all patients.

Obviously, not all mentally retarded children require hospitalization, and a subsequent study was directed toward the clarification of those factors felt to contribute to the need for admission (Lubinsky and Opitz, 1978). In one group, we subsequently identified 43 children who had been diagnosed as retarded on admission without any associated abnormality, 23 of whom had apparently developed the syndrome of autism before age 2. This high percentage is probably secondary to referral bias. Pitt and Roboz (1965), in a study with comparable groups, had a similarly high percentage of psychosis in an equivalent category.

In our group of 23, retrospective study revealed multiple deficits in intellectual, social, and emotional behavior. Two of the 23 children differed strikingly in the following ways: first, a rapid response to treatment and second, intelligence quotient measurements above 50 (which had initially been a criteria in the population) after treatment. On a review of the case histories, a further additional factor noted the presence of severe emotional and social deprivation in their early developmental histories.

This led us to search other populations for additional cases within a diagnosis of autism and with histories of early severe deprivation, in an attempt to further define this association (Morrison and Brubakken, in press). We believe this is especially important in view of reports that maternal deprivation does not cause the syndrome of autism (Ornitz and Ritvo, 1976). We have uncovered additional cases and wish to report on four of these cases illustrative of this association which have been particularly well documented. The first is reported in detail and represents many common features.

CASE REPORTS

This child presented with the following history when he was first hospitalized at age 6. He was the fourth and last born child in his family. His father was reported to have moved the family around a great deal because of his job. The mother was said to have used alcohol excessively. There is no developmental history until age 3 when the family moved in with the paternal grandparents. During this time, the child was confined to a crib, would be fed when he cried "eat," and aside from contact during those times when he was given a bottle, was not in social contact with the family. He was not fed solid food and received a bottle for the first 6 years of life, a pattern also apparent in the feeding of his sister. When he was 3 years, 9 months of age, his mother was killed in an automobile accident. All family members, except the patient, remained with the paternal grandparents. The patient, because of reported uncontrollable behavior, was sent to live with other relatives and their family of seven children. At the age of 5, he showed behaviors of hyperactivity, noncommunicative speech, and he was partially toilet trained. Because of marital instability, alcoholism, frequent separations of the partners, and the reluctance of the family to be involved in the care of their children, the family was referred to community agencies. These agencies, in turn, recommended intensive care for the patient.

The initial admission evaluation noted that the patient was in the third percentile for weight and the 25th percentile for height with a normal head circumference. There were no abnormalities noted in further physical or biochemical examination with the exception of shuffling gait and inability to grasp a pencil. Speech and language reports over the inpatient period noted that at the age of 4 he said two words, "eat" and "shut up," and at age 6 he used one noun and one verb phrase which were inappropriate to the situation. He would communicate needs by temper tantruming. He was functioning at the 2-year level of language development, with a great deal of echolalia and inability to use pronouns correctly. But at age 9, after intensive inpatient behavioral and educational therapy, he obtained a mental age of 5 years, 5 months, on the Peabody Picture Vocabulary Test. In expressive skills, analyzed samples showed that he had a mean length of response equivalent to 5 years, 6 months. The structured complexity score placed him at 5 years, 6 months of age. Seventy percent of his utterances were appropriate to the situation, while 30% of his utterances were concerned with hurting himself or inappropriate comments. Verbal tantruming, screaming, hand flapping, and crying were present during the initial speech evaluation. Summary language data noted that he was a minimum of 3½ years below age level.

Behaviorally, in the initial evaluations he showed difficulty in many areas of functioning. He revealed a great deal of repetitive behavior which also involved hand flapping, finger flicking, toe walking, and fascination with inanimate objects, specifically keys and water. Attempts at restraining his movements were met with resistance and screaming or hitting his head repeatedly with his hand. Hand posturing or body rocking was not noted. He touched everything in the playroom but did not show appropriate play behaviors. Any attempts to play with him were unsuccessful and he seemed unresponsive to staff attempts to involve him in activities on the unit. His eye contact was rated at less than 10% with inability to hold contact for more than 1 second. In addition, he did not respond to being held by the examiner and seemed to be aloof to any personal interaction. The diagnostic impression was that he showed many of the characteristic behaviors of autism and, in addition, his history indicated that he had suffered severe maternal deprivation and privation. The major difficulty in the differential diagnosis was whether his psychosis had been present in his early life. If this had been the case, it could have led to the subsequent maternal deprivation. However, his mother had similarly reared his sister who is classified as educable mentally retarded, and not psychotic. We believe, therefore, that although he may have had a reduced potential for relating and responding, maternal deprivation accentuated his aberrant development.

During therapy, he learned, within a 3-month period, to play for 20 minutes without a reinforcement. He was then placed on a parallel play program with another child, and after 2 months he could play in parallel with other children. A final program taught cooperative play among two children with learning to share toys and to interact appropriately when playing. In regard to expressive language, although he acquired speech, he did so with an atonal, arrhythmic pattern. On the Peabody Picture Vocabulary Test, his receptive language showed an increase of 2 years, 5 months in mental age after 10 months of residential treatment. On the Frostig Developmental Test of Visual Perception, also after 10 months of treatment, his motor coordination increased from 3.9 to 5.8 years; figure ground from 4.0 to 5.6 years; form constancy from 2.6 to 6.2 years; position in space from 2.6 to 5.7 years, and spatial relations from 4.9 to 5.5 years. The child was subsequently placed with his family. Parent, grandparents, siblings, and school personnel were trained in the behavior modification techniques used during the treatment phase, and he has remained in the community, attending special education classes for over the past 3 years.

The second case is that of an 8½-year-old boy who was the 7-pound, 10-ounce product of an unremarkable pregnancy, labor, and delivery. He had two brothers, one a year older, the other 2 years younger than the patient. Milestones were considered normal during the first year, but he did not walk or begin to use simple words until 18 months, and there was little progress in all areas of development after age 2 years.

His mother showed severe emotional disturbance and reportedly gave little affection to the children. The father was said to be somewhat mentally retarded. Evaluation of the patient at age 3 led to a strong consideration of child neglect, and this, combined with the general problems of the parents with coping with the children, resulted in the institutionalization of G. and the simultaneous placement of his brother in a foster home.

At admission, G. was felt to be severely retarded with an autistic behavior pattern, which had been noted at a previous assessment. Attention span was brief, there was no appropriate eye contact, and he would not smile or show recognition of individuals. At home, he had reportedly responded with screaming to continuing attempts at body contact. He would repeatedly run his fingers in front of his face and tap his forehead and was fascinated by repetitive activities such as rocking and turning water faucets on and off. There was little language, although receptive ability seemed present at times.

He made steady progress, however, and was placed in a foster home at age 5, where he advanced even more rapidly. Within a year, he had developed appropriate language and could count to ten and spell small words. Reevaluation at that time placed him in the range of mild to borderline mental retardation. However, problems continue with periods of "tuning out," from which he can only be aroused by shouting or speaking sharply to him. He also spends a good deal of time categorizing himself and animals. Because of this improvement with treatment, he was placed in a school program. This was apparently quite stressful to him, and the last available records report a general deterioration of his level of function and regression to previous behaviors.

Little is known of the pregnancy of the third case, a 6-year-old female, other than that it was term. The mother was 19 years old at the time of the birth, had borderline intelligence, and suffered from a seizure disorder. Nothing is known of her early growth and development. When the patient first came to medical attention at age 2½ years, she appeared markedly retarded, and it was believed that she suffered from a major disorder of childhood, with marked impairment of social and emotional development. Further evaluation revealed significant neglect and deprivation, with some question of overt abuse. A diagnosis of autism was made at that time, and she was placed in a foster home by court order.

In the foster home, there was a strong tendency towards withdrawal. She would scream when she experienced body contact, and she refused eye contact. There appeared to be deafness at times, even when she was shouted at directly. At other times, hearing appeared normal. She sometimes seemed not to feel pain, and her foster mother states that "she had to be taught to cry." There was a "peculiar" fascination with string, and she would manipulate it endlessly, to the exclusion of all else in the environment. In addition, motor mannerisms, such as repetitive finger snapping, were noted. There was no effective speech.

The foster home provided a stable environment, and the new parents were professional persons who made extensive use of behavior modification techniques. By the end of 1 year, she was alert and interactive and able to respond to verbal instructions. During this time, the diagnoses of a seizure disorder and the fetal hydantoin syndrome were made.

Approximately 3 years after her placement, there is little evidence of the autistic behavior pattern she once showed. There is still a tendency to treat people as objects, and to avoid interaction and eye contact while under stress. There is still virtually no effective speech or expression of affect.

The final case in this report is that of an 8-year-old male, the 6-pound, 2-ounce product of an unremarkable pregnancy and delivery. Developmental milestones were delayed. He sat at between 10 and 12 months and walked at 18 months. At age 3 he said only a few words, but these words were not associated with the correct object.

The father suffered from chronic depression. He was unable to hold a job and frequently stayed home while the mother worked. The general approach of the family to child rearing was passive, and attention was given only if the children demanded it. The family lived in the country isolated from others, and F. had no other playmates besides his sister, who was 3 years younger than he.

He was described as not being a "cuddly" baby, except with the maternal grandmother, who would occasionally visit. With her, he was apparently much more social. The father felt that F. was withdrawing much as the father had, but at a much younger age. Attempts at evaluation by a local doctor at age 3 were unsuccessful because of reported inability to respond. A psychiatric evaluation at age 5 noted particularly his aloneness and withdrawal, and deliberate interaction was avoided with the examiner, including eye contact. At an early childhood education project, he showed marked lack of skills. Shortness of attention span was also noted. There was a fascination with numbers, which he had apparently taught himself. He would read them from the telephone book for long periods of time and would often recite them to himself. Further evaluation at age 8 noted hand flapping mannerisms with stress and echolalia, as well as avoidance of eye contact and social interaction.

Continuing problems within the family led to a divorce and to F.'s placement in a foster home at age 7. His initial progress was rapid in the new situation, with great improvement in speech and self-help skills, all in less than a year. Initial optimism was dampened by a tendency which he displayed of reverting to primitive behaviors under stress. He is currently under consideration for residential placement in a treatment center for psychotic children.

In these cases, there appears to be a common sequence. The effects of deprivation were more intensely apparent after 6 months of age. Symptoms of delayed development became more evident, and there also was evidence in all cases of severe intellectual impairment. Psychosis, when it intervened, was severe and characteristic of an autistic pattern. In all four cases, this psychosis was indistinguishable from autism without a history of maternal privation. The psychosis in the severely deprived and isolated children seemed at times to be "defensive" with notable regression to psychosis when increased stress was noted in their environments. Placement of these children in a supportive, structured environment aided in improvement of impaired behaviors. These children continue, however, to manifest varying degrees of disturbance related to attachment behaviors and development of affect. This residual impairment, at least in degree, was observed and is postulated to be related to the degree of severity of the deprivational experience. Obvious implications from these histories are for continuation of support for these children after initial behavioral success in treatment and living environments.

That these children are not primarily suffering from the classical autistic syndrome and secondary deprivation due to reactive parental behaviors seems apparent. The rapid response to a changed environment and the marked increase in intellectual capacity in these cases is markedly different from the reported clinical course in the syndrome of "classical" autism. Additionally, in the final case there was evidence of an ability to relate socially to another person despite abnormal interactions with the parents.

It is worth emphasizing some of the differences between the cases in this report and the "classic" picture of maternal deprivation. The motility disturbances (for example, hand flapping under stress), the peculiar uses of objects such as string in the third case, echolalia, the perceptual disturbances, and the lack of eye contact described in these children are certainly atypical of "classical" deprivation symptomatology. Most of these patterns have, in fact, not been reported in deprived children.

Some further observations on the reaction of mentally retarded children to deprivation should be noted at this point Durkin-Stamm (personal communication).

The discovery of retardation or any handicap in a child is known to lead to mourning and occasional emotional withdrawal of the parents from the child. This can lead to the effective and affective abandonment of the child. At a residential treatment facility, it is not uncommon to admit a child of this type. Typically, there are other handicaps in addition to the retardation, and gradual withdrawal of the family from the child's care tends to lead to the need for hospitalization. On admission, some of these children showed an autisticlike picture with failure to relate, lack of eye contact, bizarre behavior, lack of play, and abnormally delayed language acquisition. That these seem more related to the experience of severe deprivation than to their retardation is evidenced by their response to placement in a stable, supportive environment and concomitant use of structured treatment techniques.

Passamanick and Knobloch may have been describing such a condition (1975).

They reported a rather high percentage (3.4%) of autistic children admitted to their service. The referral population was usually under age 2, and there was a high proportion of children with organic disease. Follow-up studies noted that the autisticlike behaviors had virtually disappeared in 75% of the patients. It can be supposed that evaluation marked entry into the medical-social service complex and effectively aided in alleviating the initial consequences of possible deprivation and also effectively prevented continued deprivation.

That this syndrome is easily overlooked is shown also by the statistics reported by Treffert (1970). His survey of major treatment centers in Wisconsin noted that there were no children reported diagnosed as autistic before age 3. Passamanick and Knobloch state that studies of psychotic behavior in young mentally retarded children are rare.This, again, could be related to the lack of evaluation of these cases or to the difficulty in diagnosing this very complex association. For the child-oriented physician, inclusion of the early social history as well as attention to early development may permit earlier diagnosis with greater opportunity for appropriate intervention and treatment, and a more favorable outcome.

PROGNOSTIC FACTORS

Lockyer and Rutter (1970) matched 63 children with infantile psychosis with a control group of children with nonpsychotic disorders of behavior. The psychotic children had attended the Maudsley Hospital between 1950 and 1958 and were examined in 1963–64. The general course of the disease was that ten of the 63 children developed seizures in adolescense. Poor outcome was noted in children with "untestable" intelligence or an intelligence quotient of below 60. Lack of response to sounds and lack of useful speech at 5 years of age also indicated poor prognosis. The level of adolescent social adjustment correlated with the amount of schooling received by the child.

Factors predicting outcome were also studied by Rees and Taylor (1975). Fifty-nine children, diagnosed as having childhood psychosis, were evaluated at age 10. They had entered a treatment center between 1952 and 1956 and at initial assessment were between the ages of 18 months to 5 years. The criteria for successful outcome was academic and occupational achievement. This criteria assumed social and emotional maturity which enabled subsequent achievement (Lotter, 1974). Significant factors noted that poor outcome was related to older age of mother at birth, poor motor and language development, decreased activity, passive tolerance of physical contact by the parents, self-destructive behavior, lack of initiative, and serious maturational lag. The most significant variable, similar to that noted in previous studies (Havelkova, 1968; Bettleheim, 1967; Eisenberg, 1956, was that of IQ. Eighty-four percent of the "unsuccessful" children either obtained an IQ of 50 or below or were considered "untestable" at initial assessments. Campbell et al. (1977) reported on ten children chosen from a population of 58 psychotic children, former psychiatric nursery patients, hospitalized at ages 2.2 to 6.8 years. The study also noted that the prognosis remained guarded.

DeMyer et al. (1973) noted that the best predictor of later performance was the rating of the child at intake. Severity of illness and performance IQ were next in importance for predictive factors. Percentages for prognosis included 1–2% normal recovery, 5–15% borderline recovery, 16–25% fair recovery, and 60–75% poor recovery.

Piggott and Simson (1975) note that follow-up results are dependent on confusing diagnosis. Thirty-three children diagnosed as psychotic between 1956–1968 were rediagnosed in 1971–73 using the DeMeyer-Churchill guidelines. By 1973 only one-third of the original group met the criteria for diagnosis of childhood psychosis. Knoblock and Passamanick (1975) evaluated 1,900 patients in a developmental service and found a 3.4% incidence of the symptom complex of autism. All had evidence of organic brain disease. Seventy-five percent of these had varying degrees of mental deficiency. A 5-year follow-up noted that none of the children had treatment directed toward their psychotic symptoms. Seventy-five percent established appropriate (to their level) social responses, and the degree of mental deficiency was greater or as great at follow-up.

Critical variables of age and type of onset for prognosis were described by Harper and Williams (1975). This retrospective study inquired into the development of the child in an attempt to define onset. Although neither age nor type of onset defined subgroups within the syndrome, these measures had prognostic value in relation to language development and IQ.

In Chapter 2 these prognostic factors are related to treatment definition. This chapter has reviewed much of the literature relevant to etiologic factors and problems in diagnosis. The review and presentation of data is not intended to be complete, but it is to encourage the reader to continue to explore areas of interest.

It can be seen that the term *infantile autism* is not clear-cut and should be used with some caution. The distinction between "infantile autism," "childhood schizophrenia," and "childhood psychoses," in terms of presenting behaviors, is confusing. No systematic definitions appear to be followed in the literature. The same child may receive several different labels depending on the orientation and bias of the clinician.

The issue of defining the exact nature of infantile autism and other child psychoses has been thought to appear insignificant if a behavioral point of view is taken. The behavioral approach has certainly shown its usefulness (as discussed in Chapter 2) in its emphasis and concentration on specific behaviors and their modifications. Undoubtedly much time and energy has been spent on definitional aspects of infantile autism, but the differential diagnosis of these children at an early age might lead to more clues concerning the etiology of the syndrome and more specific preventive treatment procedures based on these etiologic factors. Rutter and Lockyer (1967) state that "unfortunately, the findings of published investigations have been contradictory. To a large extent contradictions appear to be related to differences in diagnostic criteria but the failure of many writers to describe their cases adequately has made it difficult to assess the significance of possible differences" (p. 1169).

Kanner stated in 1973:

> After its nearly 30-year history and many bona fide efforts, no one as yet has succeeded in finding a therapeutic setting, drug, method, or technique that has yielded the same or similar ameliorative and lasting results for all children subjected to it . . . This . . . follow-up has not indicated too much concrete progress from the time of the original report, beyond the refinement of diagnostic criteria. There has been a hodge-podge of theories, hypotheses, and speculations, and there have been many valiant, well-motivated attempts at alleviation awaiting eventual evaluation. (p. 145)

2

Developing Concepts in Treatment

INTRODUCTION

As seen from the previous chapter, various theoretical approaches are utilized in the conceptualization of diagnosis in this population. Mode of treatment is frequently dependent on definition and concurrent diagnosis; consequently, many theoretical models exist. The interventions currently in use most often derive from an orientation towards the child's problems in living, a practical rather than a purely theoretical orientation. Comparative treatment efficacy is still viewed with much debate and confusion, much as that seen in the discussion of diagnosis and etiology.

A remarkable number of therapies have been utilized in the past three decades. Proponents of electroconvulsive shock, group therapy, residential treatment, operant conditioning, psychoanalytically oriented play therapy, and pharmacologic treatment, to mention only a few, are not often united in either criteria for treatment or duration of success. Variability in results has not given impetus to consensus for treatment of choice. It remains that there is no singular treatment that changes the course of the syndrome. Treatment is symptomatic, often designed to alleviate specific problems which interfere with adjustment in school, family, and daily living. The basic syndrome is essentially unchanged.

THEORETICAL BASES

Three primary and major treatment modes are currently in use in this population. Each have as their goal the emotional growth and development of the child. They differ in their formulations of treatment paradigms and frequently are based upon theoretical as well as experimental foundations of the clinicians and programs.

Behavioral Approaches

The application of learning principles in behavioral intervention with the psychotic child is a relatively recent yet burgeoning aspect in the management of the child. "Behavior therapy is the application of the results of learning theory and experimental psychology to the problem of altering maladaptive behavior" (Ullman and Krasner, 1965, p. 2). "It represents a school of thought which focuses on overt behavior and deemphasizes intrapsychic conflicts and similar conceptualizations . . . both adaptive and maladaptive behaviors are learned through interaction with stimuli in the environment; thus stimuli may be manipulated to alter behavior" (Forness et al., 1970).

The foundations for a new approach to the treatment of autistic children were defined by the pioneer work in classical conditioning by Pavlov and operant conditioning techniques of Skinner 1954). The latter perfected and applied the operant method to the study of acute and chronic psychotic children and adults. Indeed, much of the impetus for studying psychotic children in terms of learning theorgy came from Skinner, who eliminated the need for verbal instructions. He demonstrated that cooperative responses between individuals can be developed solely by manipulating the contingencies between reinforcing stimuli and the cooperative response. Reinforcement which required no verbal instruction was effective in shaping cooperative responses in both normal and autistic children.

Operant behavior modification deals directly with behavior maintained largely by its environmental consequences. It involves the use or discontinuance of reinforcers to elicit, strengthen, or reduce responses. The basic premise, first introduced by Bandura and Walters (1963), and underlying research and treatment, is that deviant behavior is learned and maintained by reinforcement from the environment.

Bandura and Walters state:

> Once rejection is hypothesized as the crucial causative factor in childhood disorders, a child's deviant behavior tends to be regarded as a derivative or manifestation of underlying anxiety or hostility resulting from the disturbed parent-child relationship. Moreover the influence of specific social-training variables, such as direct reinforcement of certain classes of deviant responses or exposure to deviant models of particular kinds, is almost inevitably overlooked.

Autistic behavior, then, is seen as following the same principles of learning as the learning of more adaptive, normal behavior.

Ullman and Krasner (1965) in their comprehensive *Case Studies in Behavior Modification* point out the importance of Bijou and Baer's (1961) findings that deviant behaviors are indeed established and maintained by the environment. This was felt to relate especially to parents, due to the unique and close relationship they have with their children.

Behavior modification, then, is the systematic use of intrapersonal and environmental contingencies to alter a subject's response to certain stimuli. Genetic and physiological factors are recognized to predispose for emotional and behavioral disturbance. Attention is focused primarily upon those specific aspects of the disorder which have been learned and can be modified. Examples are temper tantrums, social unresponsiveness, and nonverbal communication, to mention only a few.

There are numerous approaches concerning behavior modification-based treatment of autistic children. These differ only in their means of achieving extinction or deceleration of deviant behavior and acceleration of more adaptive, socially acceptable behavior. For instance, some investigators use only positive reinforcement (reward or praise) to achieve adaptable responses, while others use punishment training (ignoring the behavior, verbal punishment, time out, or electro-shock) to eliminate deviant behaviors. Many use a combination of both these techniques, basing the contingencies and modes of reinforcement on what is applicable to each child in terms of what is successful.

Since the major nucleus of behavior modification is to alter the child's current behavior and the entire set of circumstances that contribute to it, clinicians must thoroughly investigate the child's *present* behavior within the home or institutional setting. A baseline rate of behavior is taken for each separate deviant behavior being treated. Next, appropriate modification techniques must be selected and specified in precise terms. Once the experiment and treatment are over, the baseline score will be compared with behavior after modification. The difference is calculated as the measure of "improvement" or "change," be it an increase in prosocial actions, such as more verbal exchange, or a decrease in aberrant behaviors such as head-banging or temper tantrums.

One of the most difficult problems encountered by behavior modifiers while working with autistic children arises from the children's unresponsiveness or, in many cases, their idiosyncratic responses to social attention. Thus, the first goal of any behavior modification program is to render other human beings meaningful in the sense of becoming rewarding to the child. A second aim is to develop positive adaptive behavior in place of deviant forms. A final goal of behavior modification techniques is to place the child in a normal social environment. It is hoped that desirable behavioral responses would be maintained through positive social interaction and their associated positive social and material reinforcements.

Again, it is important that the Kanner-Rimland definition be considered in view of the kind of treatment the children in the following studies are receiving. It appears that schizophrenic children who are already responsive and tend to indiscriminately respond to all stimuli will need a stable, quiet, limited environment and general treatment. The unresponsive, "insensitive," and hypoactive autistic child will need a stimulating environment and various new forms of treatment from day to day. Since the labels *infantile autism* and *childhood schizophrenia* are used interchangeably or often to define the same group of children (for example, in the DeMyer and Ferster [1962] article, the children are referred to as schizophrenic, while in the Ferster and DeMyer [1962] study involving the same group of children, these children are called autistic). It is important but not always possible that these differences be recognized and clarified.

The following studies are generally experimental. Current choices of treatment procedures are often extended or disregarded by succeeding studies. Again, this presentation of the learning theory treatment of autistic children does not intend to present all of the research accomplished in this area during the past decades; rather, the most representative studies will be reviewed.

As in most fields, there is a delay between theoretical findings and application of behavior modification techniques. Although the use of operant conditioning on human beings was noted by Skinner in 1954, research dealing with modification of deviant behavior of autistic children did not appear until the early 1960's.

Learning theorists have not been as concerned with establishing etiology as have the psychoanalytic therapists. It is generally assumed that a combination of factors may be at work, either organic, environmental, or, more likely, in combination. The bulk of research appears to be centered around designing specific treatment programs for specific symptoms in terms of each individual autistic child. One author who demonstrates a great deal of interest in etiology is Rimland (1964). He depicts the condition as a "cognitive dysfunction" stemming from malfunction of the reticular formation of the brain stem. A basically organic view such as this one involves physiological treatment as well as modification. The essential learning that must be imparted is "reeducating neurons to take in cues from the environment." Among Rimland's methods of treatment is the important "role of reward or incentive in learning."

Broen (1968) is another author who demonstrates a primary interest in the causation of infantile autism. In his comprehensive survey of research, this author places stress on the heterogeneity of such children and the multiple possible etiologies. Kanner's (1943) first attempt to pinpoint cause by diagnosing the faults and characteristics of parents seems discredited by the bulk of evidence, which suggests that parents of autistic children are a cross section of the population, as noted previously. In contrast to the limited view of blaming "parental attitudes," recent theories suggest that reduced cue utilization is both a learned and defensive style of response. It could also be the "result of basic disturbance of the ability to process information" which ends in much information being lost. Broen tended to favor a merging of these two possible causes and points out that the behavior modifiers operate on the assumption that the autistic child is somewhat deficient in physiologic make-up and has learned various bizarre responses as a result of mismanaged reinforcement schedules of parents. This is defined as paying attention to the deviant behavior while not reinforcing positive, adaptive behaviors.

Another hypothesized cause of infantile autism is elaborated upon by Leff (1970):

> The hypothesized explanation for the unique success of behavior modification specifies that much of psychotic and especially autistic deficit is due to the disturbed child's *inability to learn under ordinary circumstances.* Whether it is due to the organic malfunction, parental influence or the more likely interaction of both, early failure to solve extremely simple problems would be expected to interfere with subsequent learning . . . It follows that the infant with such a developmental history would be for the most part helpless to organize or adapt to his environment and would therefore tend to withdraw from interaction with his surroundings. If this sort of etiological conception is accepted, then it may be hypothesized that behavior modification methods achieve their striking effects simply because they order the environment so that even the most severely impaired child can manipulate it. Once the subject begins to experience manipulative success, it is possible that a facilitation process begins whereby an eventual approximation to normal intellectual growth can occur. The crux, then, of successful behavior may lie in the cumulative capacity of novel, positive experiences to effect substantial reorganization of personality.

Establishment of certain key behaviors is expected to play a central role in equipping the autistic child with the ability to generalize his learning. These key behaviors responsible for triggering the growth of related, adaptive behavior must be specified in order to accomplish this goal.

Leff goes on to say that the necessity for the family and other external environmental factors to actively engage in treatment in both residential and home settings must be accepted fully. In order to produce long-lasting effects, behavior modification cannot end with the treatment situation. Adaptive change in the autistic child will be reliably and effectively achieved only when it "becomes possible to involve all the important aspects of the child's social environment in the therapeutic process."

Ora, director of the Child Study Center in Nashville, Tennessee, reports that, to date, in the intervention project for autistic preschoolers and their parents, there has been a great deal of success. Nuclear intensive treatment programs are implemented entirely by parents; any other method is regarded as relatively expensive and inefficient. Though there is no data as yet to support claims of improvement on the base rates for recovery (the progress reports of 1970 contained no evaluations), the program seems to be accomplishing positive results.

A slightly different approach in treating autistic children by involving parents and paraprofessionals was presented by Davison (1965). He employed intelligent, highly-motivated college undergraduates to execute operant conditioning techniques on autistic children. The results indicated increased control of the children by verbal command but, like the Ora project, the study is not definitive. The setting was uncontrolled, and the program lacked "rigorous experimental measures." The most significant implication was that in a short time these students were "trained to execute behavior-control programs that require application of learning principles to the manipulation of psychotic behavior in children."

DeMyer and Ferster (1962) performed much the same kind of experiment in training a regular hospital ward staff of nurses and attendants in learning principles. Each worker was assigned a child and required to discover which adult behaviors were most reinforcing for each of the eight children involved in the study. The authors, in conjunction with these nurses and attendants, then devised individual treatment programs for each child in which preferred adult reinforcement was contingent upon desired responses.

The experiment was in no sense rigidly controlled, and the effectiveness of the intervention was difficult to evaluate. However, classes of specific behaviors seemed to improve. The entire treatment program was though to be more practical and effective with children under 6 since reinforcement involved great amounts of physical contact, cuddling, kissing, and hugging.

There is a question of whether the children in this study, though labelled autistic, were instead schizophrenic. According to Rimland's definition, the truly autistic child would not have particular interest in adults and have no special form of preferred adult attention. It appears to follow that autistic children would not usually accept or be reinforced by the kissing and cuddling that took place. Rather they would require some preexperimental conditioning to make adults reinforcing so that adult affection or attention was meaningful.

Many studies deal with more general and global effects of behavior modification on autistic and schizophrenic children. Ferster (1961), in a summary dealing with behavioral techniques, accounts for the autistic condition as being due to a reduced amount of parental reinforcement of the child's performances. Atavistic forms of behavior such as tantrums, extreme withdrawal, rocking, and head-banging are, according to Ferster, differentially reinforced by the parent while little attention is paid to prosocial adaptive behavior. Thus, the child learns to get attention not by responding "normally" but by exhibiting bizarre or tantrum behaviors. Though this discovery is not a new postulate in the behavior modification literature, it is validated in this study by case studies and numerous specific examples.

Ferster found that the autistic child is often reinforced by his physical environment in a reliable, rewarding manner. For example, when touching a rocking chair the autistic child will discover to his delight that it rocks with each touch. The interpersonal environment, on the other hand, does not always respond in a constant manner. For instance, if a child wants to be picked up, sometimes the mother will lift him into her arms but at other times she may ignore his cries due to fatigue or occupation with another interest. Parents also tend, according to Ferster, to interfere with the child's attempts to make major changes in the physical environment, like touching and handling household items or moving furniture. The child is thus limited to more primitive levels of control such as playing with his own shoelace, moving his fingers in his own visual field, and emitting minimal nonvocal responses. Ferster suggests, in conclusion, that treatment of autistic children begin initially with the development of a relationship that is both accepting and reinforcing of prosocial behavior. It should also be satisfying to all needs and wishes of the autistic child. This latter suggestion seems to echo the psychoanalytic approach to treatment of autistic children.

Another more global, definitive study involving "operant interpersonal methods" was presented by King and coworkers (1960). These authors were able to elicit more interest in the environment and promote more appropriate response patterns in adult schizophrenics. The experimenters used candy and cigarettes as reinforcers, and the patient had to first work with the therapist and then with another patient for the reward. All 12 were assessed as "generally improved" in communication and cooperation with others.

Lovaas (1968) implements such findings by King, Ferster, and others in a detailed presentation intended to clarify more general issues in operant approach with schizophrenic children. This author states that the means of accomplishing treatment within the operant reinforcement paradigm is first to build behaviors by relying on primary rewards. A second intervention method proposed by Lovaas is to concentrate treatment efforts on facilitating the schizophrenic child's acquisition of social reinforcers.

> Treatment studies, then, have been concerned with both the conditions under which complex behaviors are acquired and the conditions under which social rewards are learned.

Lovaas concludes his paper by elaborating on various means of achieving social reinforcement, generalization, and verbal and nonverbal imitation by citing shaping with food, use of pain reduction, and time out procedures in the treatment setting.

In an attempt to "merge scientific and clinical approaches to the problems of psychological disturbance," Browning and Stover (1970) present a detailed experimental design illustrating specific operant conditioning with autistic children. These authors revealed a phenomenon in autistic children they termed "reversed polarity of reinforcers." That is, what is normally aversive (such as negative social attention or punishment) to the normal child can seem to be positively reinforcing to psychotic children. Likewise, what is normally positive or reinforcing to a normal child (such as touch or priase) can seem aversive to the autistic child. Thus, treatment is doubly difficult. It involves reversing reinforcement values by treating the child to react to ordinary aversive social events as aversive and to respond to positive events as rewarding. This must be done prior to employing operant techniques to control deviant behaviors and establish new prosocial skills in the child's repertoire. Classical conditioning, or pairing two stimuli with a response, was discovered to be generally successful in reversing polarities.

Once general factors have been taken into consideration, it is possible to concentrate on creating specific prosocial behavior in the autistic child and at the same time extinguish behavior that is not considered socially acceptable by this culture. By correcting key behaviors it is hoped that the more general behaviors will become less deviant.

One area of immediate concern is that involving the routine processes necessary to maintain health, such as sleeping and eating. A classic study conducted by Wolf et al. (1964) to alleviate the severe problems of Dickey, a 2½-year-old autistic child, had dramatic results. Prior to the experiment, eating and sleeping behaviors were erratic and exhausting to the parents. The child refused to wear eye glasses which were prescribed in order to save his vision. By using food as a reinforcement, and isolation from all social contact as punishment, that is, the time out procedure, the deviant behavior soon dropped out when isolation was made contingent upon undesired behaviors. The patient not only learned to wear the glasses but was eating and sleeping on a regular schedule at the completion of the treatment.

In the use of any behavior modification paradigm, the effectiveness of the reinforcer plays the major role in establishment and maintenance of behavior. These reinforcers vary with the individual, especially in the psychotic child, "because of his general deficit in positively maintained behavior" (Ferster and DeMyer, 1962, p. 313). Secondary reinforcers such as verbal approval are introduced following the use of primary reinforcers, such as candy or food. Lovaas et al. (1973) speak to the issue of moving rapidly to the secondary reinforcer, initially pairing them with primary reinforcers. Jellis (1972) further defines the positive characteristics of these reinforcers, and there are multiple reports of individual responsiveness to them (Fineman, 1968a, 1968b; Silver, 1970.

The modification of maladaptive behaviors and the various results of these programs have been reviewed extensively (Leff, 1972; Margolies, 1977), and great detail is not possible in this chapter. However, some basic behaviors and programs will be discussed in order for the reader to have some familiarity with the change which can accompany behavioral management. One should understand that prior to the instigation of many programs, maladaptive behaviors, which by their intensity as well as their presence interfere with acquiring adaptive behaviors, must be eliminated. Thus no eye contact, temper tantrums, bizarre mannerisms, and others need modification prior to, for example, socialization, speech training, or play.

Since language is essential to socialization, as well as most forms of learning, numerous programs have concentrated on helping these children acquire communication skills.

Isaacs et al. (1960) were among the pioneers to test the new operant conditioning methods on the speech of autistic children. They reinstated verbal behavior in two autistic children who had been mute for 14 and 19 years, respectively.

Stark and Giddon (1968) present a program for developing language that is fairly representative of the work in this area. They assume (and it is widely accepted) that children learn many activities including speech by imitating the behavior they observe. Their subject showed no signs of imitation; hence the first goal was to establish this. They had previously tried inducing vocal imitation with no success so they aimed for gross nonvocal imitation. They first presented gross body movements the subject could easily discern. At first the child was prompted by physically moving him through the required motion. Immediate reinforcement was then delivered by saying "good boy" and giving him a piece of candy (a primary reinforcer).

Gradually more discrete stimuli such as movements of the tongue, lips, and jaw could then be introduced. Slowly, the transition was made from nonvocal to vocal imitation, with small increments of behavior. The terminal behavior was broken down into target behaviors, each one arrived at by successive approximations. In selecting sounds to imitate, they considered those he had and then those with easily discernible features that could be prompted by manipulation of tongue, lips, and jaw by the therapist. They were introduced in a hierarchy of gradually increasing complexity. Very small increments of behavior were reinforced. For example, the child in producing the sound "N" was first reinforced for producing a sound with his tongue held between his teeth; then closer proximity to the incisors was reinforced. Verbal labelling was carried out by first having the imitative responses desired printed on cards. Candy was placed on the card, and the child received it when he made the appropriate sound. This was at first prompted. The same procedure was used to establish an association between pictures and words. Verbal discrimination was taught by bringing more verbal behavior under the control of verbal stimuli. Responses were incorporated into phrases such as "get the ______." In this way complex verbal behavior was developed.

Hingtgen (1965), in concert with Stark and Giddon, felt that a foundation for more substantial and enduring behavioral changes can be established by reinforcing imitative behavior. They postulate that as imitation becomes rewarding in itself it will generalize to many new behaviors. His subjects were two mute autistic children who had not improved under various traditionally oriented therapies. They were isolated in a room individually for 21 days with 6 hours of daily training. Food, water, and release from physical restraint were used as reinforcers for imitation of use of body, use of objects, and vocalizations. They noted a significant increase in imitative behavior which also generalized to the acquisition of new responses. This is also noted by Lovaas (1966).

Hewett (1965) developed an ingenious method for teaching speech. He placed the child in a special teaching booth to reduce extraneous stimuli and allow the introduction of negative reinforcement. A moveable shutter separated the teacher and subject. At the sound of a bell (made by the subject) the shutter rose and contact was made with the teacher. Rather than the usual reinforcers, Hewett also introduced music, a ride on a revolving chair, and cartoons in addition to candy, light, and the presence of the teacher. Isolation and darkness served as negative reinforcers and were administered when the child failed to respond appropriately. Hewett points out that what he was teaching was speech, not language. Speech was defined as being "articulated vocal utterances." Meaningful language implied "expressing of thought and emotion in an appropriate and integrated manner." Thus there still was a great barrier to be crossed here. Lovaas, however, seems to have overcome this barrier in his experiences with teaching verbal behavior to autistic children. The emphasis in his program was on the functional use of speech. Lovaas (1966) points out that, with one or two exceptions, children who were receiving language training from him rarely volunteered to speak. They were in a sense "over trained" since they responded only to specific cues given by attending adults. This prompted him to develop a program for the training of spontaneous and conversational speech. Emphasis was placed on bringing the child's verbal behavior under the control of a large array of stimuli. These stimuli were those that the child encountered outside the training sessions. Training consisted of two phases: the establishment of demands and the development of comments and stories, including recall. Demands were developed by prompting the desired response, fading the prompt, and then waiting until the child made the desired response. For example, he would have to request whatever it was he wanted before he could receive it. The same paradigm was used in teaching the child to seek information and ask questions. The child was prompted to ask an adult a question after it had been asked of him. The prompts ("say how big is this?") were then faded, and the child was finally told to "ask me some questions." Lovaas noted that at this stage the child begins to experience a real feel for speech. The children were encouraged to talk about a broad topic initially with prompts involved; then prompts were faded. Many authors have used these operant techniques to develop expressive language behavior (Lovaas, 1966; Stark et al., 1968; Sulzbacher and Costello, 1970; Hartung, 1970; Wolf et al., 1964; Miller, 1969; Jensen and Womack, 1967; Schele et al., 1967; Fineman, 1968b; Rubin et al., 1967; Pronovost, 1961; Hewett, 1965; Cook and Adams, 1966). Weiss and Born (1967), however, noted the low level of expressive language attained by operant conditioning procedures. The children in most of the studies exhibited no spontaneous conversation and showed little generalization of the experimental response to stimuli outside the experimental situation. Pronovost (1966) found that situational cues were contributing significantly to the child's responses and postulated that, in expressive language studies, comprehension and thus, generalization, may be minimal.

Guess (1969) in a study of receptive language with retarded children attempted to measure the relationship of a child's receptive language development to his expressive speech. The study raised the intriguing possibility that language reception and production are largely independent processes showing little generalization from one to the other. The majority of studies in the area of the autistic child's speech and language development have concentrated on his *expressive* speech and language development. If Guess's hypothesis is tenable, then the language studies with autistic children emphasizing expression or production could be expected to show little language generalization or spontaneous speech, as the child has little or no comprehension of what he is producing. He would be bound by the specific stimulus components of a given learning situation. Thus, to enhance his language development, it can be argued that the autistic child also needs training designed to develop receptive language.

To date there have been few receptive language studies done with autistic children (Morrison et al., 1971). The Morrison *et al.* study was concerned with the effect adult verbal requests had on the behavior of autistic children. Their hypothesis was that the child would show a stable rate of responding to a verbal request if his comprehension difficulties were due to receptive developmental aphasia and a variable rate of responding if they were due to "conflicts" concerning compliance and resistance to the request. The results, which showed the children responding variably to the requests, were interpreted as support for the "conflict" theory. This conclusion was based not only on the children's rate of responding but also on the experimenter's observations of "conflict." It is true that motivation does play a large part in responding, and the authors would have been correct in maintaining this alone; however, the "conflict" hypothesis was not sustained by the results obtained, as a stable or variable rate of responding has been shown to be a direct function of the contingency applied to behavior. Either alternative could have been supported depending upon what contingency was applied.

A review of the remainder of the language literature reveals few receptive language studies. Bricker and Bricker (1971), working with retarded children, utilized a naming procedure to facilitate discrimination learning on the basis of auditory cues. They hypothesized that the receptive language training in discrimination would facilitate formation of a learning set that the child could use for future discrimination problems. Zimmerman et al. (1969), again working with retarded students, looked at the effects of token reinforcement on instruction-following behavior in a group situation. They found that large increases in instruction-following behavior occurred in most of the group after the contingency was instituted. Schutte and Hopkins (1970) studied the effect that teacher attention had on instruction-following behavior in a normal kindergarten class. Their results support Zimmerman's findings that contingent reinforcement will reliably increase instruction-following behavior. Guess (1969), in the previously cited study with retarded children, did a functional analysis of receptive language and productive speech, utilizing the subject's acquisition of the plural morpheme. He found that while generalization was noted within the child's receptive speech repertoire, the receptive language training did not generalize to the area of expressive speech. Baer and Guess (1971) measured the receptive language behavior of retarded subjects and also found generalization of response classes occurring within the receptive language behavior of the children.

Thus, in summary, these few studies of receptive language have shown that contingent reinforcement reliably increases the frequency of receptive language behavior. Attending to auditory cues increases discrimination, and generalization of receptive language training to other similar receptive tasks occurs, although this receptive training does not often seem to generalize to expressive speech.

Stark (1972) has suggested teaching single element components and the use of visual stimulus cues in programming language for autistic children. Carrier has successfully demonstrated the use of a prosthetic nonspeech mode of communication with a population of severely retarded children. The communication mode required the subject to order differently shaped chips on a tray, using shape as a coding device for items within a syntactic class and color as a cue across syntactic class. A similar procedure (McLean and McLean, 1974) has been used with two nonverbal autistic children. The two children were able to communicate by placing the appropriate plywood word wymbols on a slant tray. One purpose of the current investigation was to modify the previously successful visual cueing programs of Carrier and McLean and McLean for use with an autistic child who is capable of utilizing a speech response mode.

A second important aspect of language programming for the autistic child is the systematic integration of behavioral and language programming. Sulzbacher and Costello (1960) suggested a program of therapy, including a behavioral program of eye contact as a programmed requisite to language training.

A second aspect of generalization to be considered is stimulus generalization. McLean suggested systematically shifting the stimulus cue from echoic, to picture, to printed word, to sentence completion in the remediation of articulatory deficits of mentally retarded populations. Few attempts have been made to apply his technique of programmed stimulus shifting beyond the phonological level of language.

In regard to the major language deficits displayed by the autistic child, one notes that most researchers have been interested primarily in expanding the expressive language repertoire. They have often neglected the receptive components of language behavior.

Another area which learning theorists consider vital and key behavior is that of social interaction. It is hypothesized that once a rewarding relationship is established between the child and the experimenter, this relationship will generalize with operant techniques extended to other people and situations. Gradually, the goal is to be able to fade out the primary rewards and replace them by moderate amounts of social reinforcement.

Hingtgen and coworkers (1963) in their experiments hypothesized that a schizophrenic child could be led to interact with another child if reinforcement were contingent upon that interaction. By gradually increasing the complexity of interaction by the method of successive approximation, an improved form of social behavior could be obtained. Thus, six schizophrenic children who had been observed to initiate little or no social interaction with peers were trained to operate levers to obtain coins at a fixed-ratio schedule of reinforcement. These coins were then used in vending machines to get candy, crackers, or cereal. Each child worked daily for 30 minutes until a baseline was established. The subjects were then paired on the basis of length of hospitalization and placed together in the room in all following sessions.

Using nonverbal operant conditioning techniques, the cooperative responses were shaped in succeeding sessions until one child became totally dependent on the response of the other to obtain coins. On the average, 23 sessions were necessary in order to shape cooperative responses in the children.

The frequency of physical contacts between the subjects, although not directly reinforced, was higher during the shaping period than in the ward. The children were also observed to make vocal responses and facial expressions which appeared to be directed toward their partners. While little evidence supports the continuation of social interaction on the ward, it was suggested that an extension and modification of contingencies in a ward situation would produce more permanent change in behavior.

A study by Jensen (1967) illustrates some of the methods used to eliminate certain behaviors. When temper tantrums occurred in his client, extinction procedures were used. The child was placed in a "quiet room," which was barren and unstimulating. This procedure utilizes the concept of "time out," a period where the child is removed from all sources of reinforcement. The temper tantrums which occurred ten times a day, soon dropped to a very few a month after this procedure. Bandura and Walters (1963) and others believe that punishment models and teaches aggressive behavior to the child. In conjunction with punishment, the situation should always be one where the performance of a desired behavior avoids or terminates the response. Punishment only teaches the child what not to do, and a child should always be taught also what to do. Lovaas et al. (1965) demonstrated in a study using electric shock how very important is the concept of negative reinforcement. In essence the children learned to approach adults to avoid shock. Lovaas stated that the extensive presence of pain in everyday life suggests that it might be necessary for the establishment and maintenance of normal human interactions. The adults in the study became discriminative stimuli for the removal of noxious stimuli, just as parents become SD's for the removal of noxious stimuli to infants. The belief is that any stimulus which is associated with pain reduction acquires positive reinforcing properties. As the adults were associated with shock reduction, affectionate behavior towards them increased. This responsiveness to other people is a major step in any program. Unfortunately little generalization of learning took place. The therapists soon lost their secondary reinforcing properties, and the child was not responsive to people outside the experimental situation.

These results are consistent with Rimland's (1964) hypothesis. The children couldn't make use of their past experience in any integrative fashion. Breger (1965) explains it in terms of a dysfunction of mediating structures in the brain. In terms of this study, the therapist and other people may have not come to symbolize nurturance or relief from discomfort. Another hypothesis might be that they became conditioned aversive SD's.

There are numerous studies for referral in regard to specific behaviors. Conditioning generalized imitation (Metz, 1965), generalization (Rincover and Koegel, 1975; Freeman et al., 1976), effects of stimulus on learning (Schreibman, 1975; Boucher, 1977; Koegel and Schreibman, 1966), play behavior (Koegel and Schreifman (1974), classroom behavior (Rabb and Hewett, 1967; Martin et al., 1968; Koegel and Rincover, 1974; Frankel and Graham, 1976), toilet training (Marshall, 1966; and eye contact Brooks et al., 1968; Hartung, 1970) are representative. Parent training will be discussed in Chapter 5.

In the area of operant conditioning it appears that more emphasis is needed on discovering methods that encourage spontaneity and creativity. The shaping of behaviors which are by nature easily observed and measured has been amply illustrated. It is suggested that there are some limitations in operant technology. Perhaps they are conceptual in nature and can be dealt with theoretically and empirically or perhaps they are real and there are natural limits inherent in the theory. However, it can be said that "... studies indicate that Positive Reinforcement may be an extremely useful tool in the education and rehabilitation of psychotic children. None of the investigators whose work was reviewed would claim they have cured their subjects. But many can justifiably state that they have equipped their subjects with several of the basic skills and habits necessary for the most rudimentary of adjustments to their social environment" (Leff, 1972).

Psychodynamic Therapies

As mentioned earlier in this chapter, the approach of psychodynamic therapy to a child and the methods employed in treatment are based on "one's conception of the nature of the disease process" (O'Gorman, 1967, p. 42). There are a number of variations of psychodynamic/psychoanalytic therapy in the literature, including the type of therapeutic situation with differing emphasis on the importance given to interpretation of the childs actions, attempts to control the environment and behavior of the child, specific variations in methods such as group vs. individual treatment situations, and goals of treatment.

The 1950's witnessed a growing psychoanalytic interest in the treatment of psychotic children. Before this time many investigators supported previous viewpoints that the psychotic disturbance was essentially "outside" the realm of psychodynamic treatment.

Psychoanalysis in its pure form was developed by Sigmund Freud mainly for treating neurotic disorders that were thought to be the result of the rejection of certain traumatic factors by the conscious mind. These factors subsequently persist in the unconscious mind as dynamic repressions. They then were postulated to lead to conflicts which can be resolved by uncovering and analyzing the repression. This analysis implies separating a whole into parts so as to find out the nature, proportion, function, or relationship of the whole. In psychoanalysis this is traditionally accomplished through four standard procedures: dream analysis, conscious memory, free association, and transference.

In dealing with psychotic children these traditional approaches met with some difficulty. Some of the standard methods have been adapted to children. For instance, Klein (1950) discovered that the merits of free association are derived from the free play situations with disturbed children since play is considered a more natural action for young children than speech. Reproduction of the world through playthings was felt to allow the child to act out his feelings in a "safe" world. These play actions are equated by the therapist with spoken ideas, and interpretations have been shown to be valuable in helping the psychotic child adjust to reality.

Like learning theorists, psychoanalysts have a multitude of theories concerning what causes the autistic condition in children. Many agree with Freud's (1946) original postulate that psychosis results from a breakdown in ego structure, a lack of object awareness or sense of identity, and fixation or regression at primitive levels of functioning. Some support the theory of early trauma or crisis as an explanation. Others feel the disorder is brought about by an aberrant mother-child relationship. Many feel that the autistic child may have been constitutionally predisposed or that inadequate defenses underlie the child's retreat from reality. Each authority has a different means of "reconstructing" reality for the autistic child in terms of what each defines as being the central problem and cause. This has resulted in a great deal of confusion and criticism.

One striking repetition in nearly all of the early psychodynamic literature concerning treatment of autistic children is the stress placed upon the initial establishment of an exclusive need-satisfying relationship between the child and therapist. Once the autistic barrier is penetrated through this relationship, real progress is thought to begin.

Another striking similarity in many early studies is the lack of concrete suggestions and methods for treatment of autistic children. Few studies illustrate by example or direct information how autistic children should be handled. Most treatment methods were implied in what the author stated was most important or most in need of correction.

The major trend of the 1950's was a shift from concern about clarification and establishment of psychopathologic categories and classifications of infantile autism as a label to an active and investigative understanding of some of the psychological problems and peculiar modes of mental functioning of the autistic personality. The 1960's brought concern with improved treatment techniques which shifted from an uncertain prognosis to one in which there is increased probability for recovery. Perhaps by the end of the 1970's we will see more specific, validated studies coming to the fore.

The literature of dynamic diagnosis and treatment for psychotic children has increased. These disturbances were once viewed as far too subtle for scientific measurement and pragmatic study characteristic of those employed by behavior modifiers. Psychoanalytic research consists primarily of individual or limited group case studies, and broad, generalized contributions appeared to be introductions to the field rather than advances in the frontiers of treatment in autistic areas. Toward the end of the past decades, however, more extensive casework and more flexible modes of therapy begin to take the spotlight.

Before listing and discussing some of the representative methods employed by psychoanalysts to treat autistic children during the past decades, it is important to clarify one issue. This section does not intend to list exhaustively all the material that has been written in the psychoanalytic literature concerning treatment of infantile autism. Rather, it is the intention of the authors to point out some of the more classic studies and central issues which have appeared and reappeared throughout the literature.

In this survey of the literature, there is a dichotomy between the more "traditional" and the "modern" methods introduced in the psychoanalytic treatment of autistic children. Many leading investigators used techniques applied to neurotic patients for psychotic/autistic children without much alteration in the treatment procedures. Some of these authors tended to diagnose infantile autism as caused by interpersonal and intrapersonal disturbances. These disturbances included inadequate defense mechanisms, lack of object-relationship formation, maladaptive ego functions or transference processes, and environmental aberrations such as disturbed parent-child relationships. Following these more or less inclusive etiologic theories, very general treatment procedures were suggested. For example, the author may say that to develop proper defenses a strengthened ego is necessary.

One hypothesized basis for the formation of infantile autistic symptoms is that certain developmental needs have not been met, and the result is an aberrant defense system. Weiland and Rudnik (1961) define autistic behavior as "symptoms that develop primarily as a defense against essentially traumatic and overwhelming experiences with primary objects at a crucual stage in growth." The autistic child is helped to overcome this trauma and develop adequate defenses by forming the traditional "object cathexis" by introducing a state of intense helpless dependence, similar to that of "normal" infants at the time of very early infant life. Returning the child to the age at which the crisis occurred and letting him relive this period of his life without trauma will, according to Weiland and Rudnik, enable the autistic child to develop normal defenses. After the initial period during which the child learns that gratification can come from the therapist, treatment can gradually be transferred to the primary object, often the parent.

An extension of the theory that infantile autism is due to inadequate defense systems is proposed by Garcia and Sarvis (1964). These authors claim that infantile autism is a reaction to an "overwhelming assault at a vulnerable developmental stage." They hypothesize that the infant tends to construe any catastrophic stress as if it were the mother who were persecuting him and reacts with rejection of the mother. The autistic child thus develops "the basic paranoid attitude" which Garcia and Sarvis feel is at the core of the autistic reaction.

In treatment, these authors (Garcia and Sarvis, 1964) found four factors which determined the direction in infantile autism between recovery and chronic deterioration: timing, severity, and duration of the assaults; counter-rejection or counter-withdrawal on the part of the mother and family; antiautistic factors in the child and his family; and benign or malevolent circumstances. This concept of infantile autism assumes that the syndrome represents not a unitary cause but a reaction to multiple agents. Thus, an important aspect of treatment is that each child must be assessed in terms of these four factors and an evaluation derived from a thorough analysis of the individual.

According to Garcia and Sarvis, it is disastrous to propose treatment plans on preconceived assumptions about point of access into a group of children. Classifying and prescribing treatment that happened to apply in one case does not necessarily imply that all children with similar disturbances will respond. In contrast to Weiland and Rudnik (1961), Garcia and Sarvis feel that the therapist should not always guide or urge regression. For some children, work should begin to repair unmet developmental needs without return to the original arenas of conflict. The emphasis should be on promoting the child's progressive development by educational as well as interpretative maneuvers. For the most part, these authors state that the therapist should remain the representative of reality. The therapist should also avoid premature achievement of mere social conformity as a treatment goal. One of the most important points to consider in approaching the autistic child and his family, according to Garcia and Sarvis, is the avoidance of reinforcement of the child's basic paranoid attitude. Garcia and Sarvis stress that treatment procedures based on concrete and individual considerations are the only solution when one looks objectively at the marked qualitative and quantitative differences among autistic children. The wide variations in family psychopathology, individual child reaction, accessibility for involvement in the treatment process, and the need to respect practical situations and timing in the therapeutic intervention are all important aspects of the type, duration, and intensity of treatment.

Shaw (1966) suggested that treatment for autistic children should be aimed at both relieving anxiety and strengthening defenses. Effecting these aims involves a long process. The approaches he recommends are several and depend upon the family situation, as well as the child's own capacities and needs.

One of the essential features of the therapeutic environment proposed by Shaw is the need for an environment which is relatively constant and not overly demanding of the child. This is in direct contrast with the opinions of Des Lauriers and Carlson (1969), O'Gormon (1967), and Ekstein (1966). They proposed a highly stimulating, changing environment in their treatment procedures. This seeming contradiction may be explained by referring to Chapter 1 of this book, in which a distinction is made between the infantile autistic and the schizophrenic child. It would appear that Shaw is speaking of the hyperactive, schizophrenic child who does indeed require restricted, calm surroundings as opposed to the inactive, inattentive hypoactive autistic child to whom Des Lauriers and others seem to be referring.

Shaw (1966) goes on to say that the therapist must at all times try to be patient, warm, supportive, and sensitive to the child's feelings. This type of therapy is labelled noninterpretative. It consists mainly of reeducating and reassuring the child about his identity and relationships with the environment. Another main function is to work with specific uncertainties or conflicts which these children have, such as feelings of dissolution, concern about identity, and body images. This often requires that they be told or reassured many times about such elementary things as their own names, who they are, where they are, and what is down the hall. Shaw states that the gradual process of teaching the child to live in the outside world is "not unlike teaching a mechanical boy to be a real person, or rather how to pretend to be a real person."

Another more standard approach in psychodynamic treatment of infantile autism is the concern by many authorities that the child develop normal ego functions. This idea is elaborated upon by numerous authors throughout these decades. DesLauriers (1962) was one of the first to apply the concept of disturbed ego functions to autistic children. This author based his treatment on the theory that conflict of the ego results in disturbances in relation to the environment and reality. Instead of proposing the previously accepted theories of satiation of libidinal or instinctual needs, DesLauriers stated that repression, controls, and prohibition are essential parts of ego development. More normal, adequate, and effective reconstructive channels which serve to render reality less frightening aid in forming a more healthy ego in autistic children.

According to DesLauriers, the greatest source of fear and anxiety in the autistic condition is directly related to the loss of reality experiences and relationships. The therapist must help the child regain or gain for the first time a grasp on reality through showing disapproval of symptomatic behaviors and helping the child control motility. The child also must realize the separateness between his own identity and that of others, develop a clear awareness of spatial relationships, realize continuity in time, and form conceptual levels of thinking. All of these were thought to be accomplished through giving the child direct reality experiences and interpreting these to him while simultaneously helping him diffuse his interest in the environment.

Another author who supported the idea that disturbances in ego functions were the core in the condition of autism is Goldfarb (1961). He dichotomized autistic children into the "organic" and "inorganic" groups. The organic children were described as most aberrant and tended to belong to the most adequate families. The inorganic were thought to be least deviant and tended to belong to the most disturbed families. Though both groups represented disturbances in ego functions, in the organic group these disturbances were credited to inadequate physiological bases for receiving, evaluating, and conceptualizing impressions into appropriate action. In the second group, the psychosocial environment, in terms of the family's inability to enhance the child's efforts to structure his experiences, give meaning to them, and improve adaptive proficiency, was postulated to cause the autistic state. Physiological or drug treatment was suggested in treating the organic children. Family psychotherapy in addition to regular individual therapy was proposed in order to treat the inorganic children most effectively.

There is evidence that two different types of children are being diagnosed by Goldfarb. The organic children are the ones Kanner and Rimland would term infantile autistic, while the inorganic label would seem to apply to schizophrenic children. As would be expected, Goldfarb found that the least disturbed "inorganic" children responded most favorably to psychoanalytic therapy. This was often accomplished by ordering and making the child's experiences predictable so that he did not respond with terror (hypersensitivity).

Rosenfeld and Sprince (1963) further investigated the hypothesis of unusual sensitivities, suggested by Goldfarb and others. Rosenfeld and Sprince concluded that autistic children were forced to precocious ego development in order to compensate for their "thin protective barriers." Because of the prematurity of the ego development, it would easily break down under stress. Normal, everyday occurrences could become stress situations for autistic children.

These authors rejected the idea that organic causes were at work, with the statement that the weakened ego *results* in the child's inability to select and inhibit stimuli, interferes with differentiation between self and object representation, and interferes with the distinction of what is inside and outside the infant's own body. Their treatment implied a limited amount of stimuli introduced gradually in a quiet, plain treatment setting. Routine and predictable events would be the backbone of the therapy sessions. Eventually, when the child developed a stronger ego, the stimuli would be increased to the complexity requiring normal reality testing. It appears that these authors were speaking of schizophrenic, hyperactive children who required a limited environment. However, these authors did not impart any detail as to how the ego would be strengthened.

Another author concerned with ego development is Wolman (1965), whose treatment program for autistic children involved "restoring missing or distorted maturational and developmental ego functions." Other sections of the total treatment were "to establish greater body integrity and a sense of identity and to develop object relationships." In order to achieve these three goals the child must go through the missed phases of development: the autistic, symbiotic, and separation-individuation phases. The therapist's main function was to provide the children with a readily available substitute ego. The therapist may have served as a substitute stimulus barrier to protect the child from excessive environmental stimuli while moving him away from threatening inner stimuli and into gratifying common pursuits. At times the therapist's role was educational. He helped the child understand time realities, body functions, and social relations.

Like Garcia and Sarvis (1964), Wolman disagreed with the trend of inducing regression in treating infantile autism. He stated that an important function of the therapist was to prevent regression by setting firm limits on destructive and self-destructive behaviors. Limits and boundaries were necessary in both the play situation and in interpersonal relationships. Wolman proposed that the therapist must not only be able to understand and respond with empathy to the primary-process thinking and behavior of autistic children but also needed to reassure them verbally about their basic worth as persons.

Similar to the treatment suggested by Garcia and Sarvis (1964), Wolman used individual therapy. Since he viewed the autistic child as intolerant of direct human contact, many indirect methods are suggested to move him from withdrawal. These included music, dancing, and special twirling toys and materials of great mechanical appeal. Wolman asserted that through pleasurable stimulation the autistic child is led to test reality through higher sense organs rather than through licking, biting, or smelling objects and people. Wolman cautioned against haste in forcing radical changes upon the disturbed child. Body contact and social relations could only be administered in "small doses" over a long period of time.

Another author who viewed infantile autism in terms of aberrant ego development was Ekstein (1966). He defined "psychotic and borderline" children as limited by ego disturbances which enabled them to mobilize only specific primitive solutions to their conflicts. The therapist must then, above all, be aware of and make use of the fact that psychotic children are still children and therefore "subject to marked and frequent fluctuations in ego states." Each conflict may well be on a different level of consciousness and thus involve a different phase of ego development.

Ekstein goes on to say that:

> One of the chief duties of the therapist is to relate the unconscious conflict to the conscious awareness of the child. The main technical difficulty, then, is how to respond to the rapidly changing need systems and modes of expression these children have in order to develop secondary process potentialities over primary process ones to their fullest capacity. The standard psychoanalytic approach assumes the ego is intact when it obviously is not in autistic children and thus original, fresh new ones must be developed and administrated.

Unlike many of his predecessors, Ekstein proposed numerous specific solutions. However, he cautioned against general use of these innovations which he claimed were "for the most part, patient-specific and needed testing and further use before being adopted as guides in the treatment of all autistic children."

Like Garcia and Sarvis, Wolman, and O'Gorman, Ekstein suggests a highly individualized approach to the treatment of autistic and borderline children. Like many other recent authors he advised exhaustive examinations in all areas.

Physical, social, intellectual, and other evaluations needed to be completed before a diagnosis and individual treatment style is defined.

In addition to the theories of inadequate ego formation, defense mechanisms, and individualized treatment, the psychoanalytic literature referable to infantile autism has many references to the lack of identity, object relationship, and transference ability of the autistic child.

Alpert (1961) was among the first to treat autistic children in terms of object relationship theory. He maintained that some autistic children respond favorably to "corrective object relationship therapy." This therapy involves a progression from the autistic, withdrawn state to a working object relationship with the therapist. Alpert states that the condition of infantile autism can be greatly overcome if the child can be led to develop more than a "pseudo" object relationship.

A somewhat different view on the same subject was posed by Jacobson (1967). She considered the tendency of autistic children to cling to the external world of objects and the problem of transference to constitute the two major problems in treating these children. The complex, erratic, vacillating, and often contradictory nature of the relationship of the autistic child to the therapist makes the diagnosis and interpretation difficult. The autistic child is seen by Jacobson as one who has "regressed to need satisfying levels of mental functioning" and is, therefore, incapable of transference. If the child can be brought beyond the lower levels of functioning, Jacobson asserts that "some change can be effected in certain cases."

The identity crisis is another theory of causation, with treatment procedures reported throughout the early literature. Some have encouraged separation in order to help the autistic child achieve a sense of self separate from others. Personal identities as well as group identities were evaluated as very fragile in autistic children. Therapy was directed toward establishing a constant identity immune to disintegration under ordinary stress circumstances. The suggestion of how this goal was to be accomplished was by "providing the child with a safe, secure environment."

Though many psychoanalytic investigators state that the child's environment is not normal and the condition of autism is due in part to parent and home inadequacies, Bettelheim (1967) is one of the few authors to assert that the parent is totally responsible. He suggested that infantile autism developed as a reaction to extreme negative feelings shown by the parent. These feelings were so marked that the child felt without hope, much in the same way as did many inmates of German concentration camps. The severity of the child's response, claimed Bettelheim, was indicative of the period of development at which the child experienced parental rejection. This was especially during the first 6 months of life, when real object relationships begin, at 6 to 9 months, when language and locomotion are beginning, and at 18 to 24 months, when the child starts to shape his relations with the environment. Consequently, the child lacks speech and emotional expression because there is a lack of a receptive audience as perceived by the child. Bettelheim goes on to say that the autistic child's siblings are not affected because only the autistic child experienced the rejection at the critical period of development.

The steps in a therapeutic process for the autistic child, according to Bettelheim, involve giving the child an "ego or self" and a subsequent chance to be human and capable of exercising some amount of real autonomy and freedom. Though the author is not specific, it is implied that the child should be removed from his family in order to allow him a "chance to determine his own destiny."

A less traditional approach to treatment of autistic children is introduced by Speers and Lansing (1965) and Coffey and Weiner (1967). These authors propose using group therapy with autistic children. Speers and Lansing postulated the formation of a "group ego" for autistic children who have weak or defective egos. Since ego structure and identity were judged to be very fragile, therapy was directed toward establishing a constant identity and a strong enough ego to resist disintegration under ordinary stress circumstances. The authors found their group treatment to be "generally effective" with autistic children.

Coffey and Weiner, in their group therapy program for these children, initiated the use of less severely disturbed children as "catalysts" to encourage social participation of the autistic children. These authors maintain that this method is more effective than individual psychotherapy since the latter method is not as easily transposed to children from adults.

Basic to both group therapy approaches is the premise that social interaction will promote healthier interpersonal relationships. Interaction with other children is intensely promoted. In Coffey and Weiner's approach, the less conflicted members help free the more troubled youngsters and aid in drawing them to reality. The catalysts also serve as models for the autistic children. With Speers and Lansing, on the other hand, the treatment process is carried out in a more traditional way with a therapist leading the group.

Where Speers and Lansing are somewhat vague in their definition of and proposals to form a "group ego," Coffey and Weiner state five specific steps around which their treatment program is centered. These include: nuturance (especially feeding and handling), catharsis or discharge of psychic energy, reality testing, interpretation, and insight. By the end of treatment less dependent interactions with the therapist and more interaction with the other children were observed in all the autistic children in the first program and in five out of six in the second. The follow-up study of children back in the home setting indicated that these interactions continued but at a slower rate of improvement.

In light of the Kanner-Rimland definitions of autistic and schizophrenic children, it would seem that both group treatment programs were dealing with childhood schizophrenics. Since most of the children in the institutions were verbal, had some attachments, though limited, to other persons, and experienced improvement in a relatively short period of time, it would appear that schizophrenic children were the subjects in these books.

Another less traditional approach in treating autistic children is the use of "free love," in the broad sense of the word. Coleman (1964) introduced this concept and combined it with various standard psychoanalytic therapies. He feels that for children who have retreated into autistic withdrawal from a world viewed as hostile and frustrating, love, or "unqualified affection and warmth is often a potent therapeutic weapon." Not all autistic children need or can accept such unqualified acceptance, but the beneficial effect of love on some sensitive, withdrawn patients is "often dramatic to observe."

Another somewhat different approach to treating autism was proposed by Creak (1964). This author observed that without speech the autistic child lacks understanding of the world around him. She stresses the necessity of drawing speech out of the child once the autistic barrier is penetrated, in order to "better his chances of improving intellectual integration."

Another psychoanalyst, Chess (1969), presents an interactional view of autism. Her contention is that, regardless of a biological, maturational, or other etiologic difference, treatment should be centered around teaching the child more and more complex responses to gradually more demanding situations. This can best be achieved by psychoanalytic "tutoring" in combination with which physiological therapies need to be administered.

Another attempt to define and treat autism from a physiological basis is presented by DesLauriers and Carlson (1969). This author proposes the existence of two arousal systems within the brain which contribute to the autistic condition. Physiologically there is an imbalance in the brain, and DesLauriers sees this imbalance of the "arousal level" as an inborn condition. He advises therapists not to look primarily to the environment for explanation of the autistic state in children. To overcome this "affective barrier" or imbalance, high impact affective stimulation of a consistent, persistent, and well-structured nature is required. For the hyperactive child, choice types of stimulations, *i.e.*, tactile, proprioceptive, and kinesthetic, need not, and indeed should not, exceed normal levels. The hypoactive, hyposensitive autistic child, however, not only must be "bombarded with high affective stimulation but all other types of stimulation as well, which serve as arousing by virtue of their initial strength or excessive repetition."

Therapeutic implications in this more recent approach to infantile autism involve specific steps including overcoming affective imbalance, widening the world of the child, increasing limited and limiting responses, and helping the child discover the body self and need for separation and differentiation. All of these are somewhat traditional steps but based on a more modern approach to the causes and cures of infantile autism.

DesLauriers goes on to say that while blaming parents for the condition of the autistic child may be traditionally sound, this approach offers no solution. Involvement of the parents in therapy is a large part of treatment of the child, for eventually he is returned to the home and the parents take over treatment. Thus, the continued possibility of growth for these children rests on the degree to which the home and parents are capable of maintaining a climate of high affective arousal. The autistic child is viewed as quite capable of pursuing a normal rate of personality development if the human environment can offer novel, stimulating, and surprising events which accomplish an arousing impact in the child. In the case studies contained in DesLauriers' book, success was measured in the 6- to 10-month I.Q. and Social Quotient deficits obtained in 2 to 4 months of treatment. In this program, parents were considered the most appropriate therapists and were involved in great detail in the entire treatment process.

In the Haworth (1964) study two modes of psychotherapy for autistic children were compared. The expressive therapy of allowing verbal and physical acting out of feelings or encouraging regression was thought to "work through and really cure specific symptoms," whereas the suppressive therapy which limits socially unacceptable behavior may bring about "temporary overall improvement, principally in the direction of increased self-control and conformity." However, with both divergent therapies, the underlying psychotic process remains untouched, and Haworth states that the suppressive seemed the more favorable method for treating autistic children. Again, there is confusion in definition: two types of children, autistic and schizophrenic, would be expected to respond differently to expressive and suppressive therapies.

More recent literature, beginning in this section of the chapter with the year 1975, defines expanded views of treatment of the autistic child. The development of the capacity for use of transitional objects was done using creation of a "tolerable world" emerging in tolerance of separation (Fischer, 1975). The use of fantasy enactment leading to the beginnings of individuation and integration of the self with emergence of dependency feelings is described by Macdonald and Allan (1975). Play therapy, continuing weekly for 2½ years, was used in a child who showed a lack of fundamental interpersonal relationships and high intellectual ability. Focus was on developing positive rapport in four stages of therapy, with subsequent adequate school adjustment (Tamai and Endo, 1975). The use of healthy children in a school setting with autistic children and their mothers is reported by Shimeda (1975). Results showed that mothers of autistic children gradually decreased their own anxieties after being in contact with the healthy children. The use of an ethological approach to treatment, with its object the progressive expansion of the relational space of the child, is discussed by Zapella (1975). She states that the therapist's natural qualities and ability to create stimulating situations in fantasy is fundamental in the mode of treatment.

Psychoanalytic play therapy, considering difficulties in the development of object constancy and establishment of the self, aims at a primary treatment goal of restoring autonomy and self control (Ekstein and Caruth, 1976). Nomura (1976) notes that play therapy, in fostering a mutual exchange between client and therapist, is germane to the treatment of the autistic child. Psychotherapeutic interventions directed toward stimulation of ego boundaries and mental self representations in outpatient settings are described by Lopez and Ieon (1976). Individual treatment aimed at development of the ego, satisfaction of external needs, and expression defines success in the assessment of learning versus treatment.

No notes that no matter what theoretical system one subscribes to, the general goals for all children are emotional growth and maturity. He proceeds to discuss these from a psychoanalytic point of view. He defines maturity as the progressive moving of the libido through the oral, anal, and phallic areas with eventual achievement of genital sexuality. A child might become fixated at one of these stages. The goal of psychotherapy in this case would be to help the child overcome the fixation so that he can continue developing.

Maturity is also defined in terms of the reality principle gaining dominance over the pleasure principle. If the child's difficulty was perceived as one in this area, psychotherapeutic efforts would be directed at helping the child progress to the reality principle stage. Two other types of maturity are noted by Kaplan (1967): "maturity of object choices" (p. 7) and "maturity defined by a greater autonomy from parents" (p. 7). These two kinds of maturity have the most significance in a psychoanalytic approach to infantile autism. The treatment procedures are based on the specific hypotheses concerning the development of autism that generally stem from these two areas. Many psychoanalysts (Rank, 1949; Mahler, 1952; Alpert, 1964; Tustin, 1966) consider the mother-child relationship to be of prime importance, and this constitutes their rationale of treatments.

With autistic children the emphasis is on establishing a basic dependency relationship between the therapist and child. It is felt that this is necessary before the child can progress to later stages where he would be expected to demonstrate some independence. Followers of Mahler attempt to induce regression in autistic children to this "symbiotic" level and then proceed to take them through the normal phases of social development. Mahler (1961) has suggested that "a depression" occurs, arising from the realization of the self as being separate from the love object. "When in the course of maturational growth, the ego is confronted with the incontrovertible fact of separateness, the fused symbiotic representations of self and object do not allow for progress towards individualization" (p. 341).

Alpert (1964) states that the purpose of the therapeutic process is to "undo the effects of maternal deficiency in affective and sensory modalities by establishing a symbiotic dependent relationship with a constant consistent need-gratifying object" (p. 614). The treatment method hopes to induce a regressive movement on the part of the child, with increased dependency on an oral incorporative level. Weiland (1964) points out that the sequence of events involved in the development of "object relatedness consists of three overlapping periods: autism, symbiosis and separation individuation" (p. 317). The goal of most psychoanalytic treatment of autism is the initial establishment of a symbiotic relationship between therapist and child (one level above the autistic stage) with further development progressing from there.

In summary, psychoanalytic therapy with autistic children is "based on the assumption that emotional development and learning depend primarily on the establishment of a relationship with a mothering source that is consistently gratifying." Through the mother, the child develops a trusting, loving relationship and object constancy. It is hypothesized that after this he can then control his impulses and form a self image.

Somatic Therapies

As with other treatment methods discussed in this chapter, there is no evidence to support the contention that drug treatment is more effective than any other mode of therapy, either alone or in concert with other therapies. The choice of drug treatment will depend on the individual child and other contributing factors. As with behavior modification, appropriate medication may eliminate maladaptive behaviors such as agitation or short attention span and permit focusing on tasks of learning. Problems in the evaluation of the effectiveness of medications in this syndrome are numerous. Similarity in symptomatology does not imply similarity in etiology (Campbell, 1973). We are not able to treat a specific disease; rather we treat "target" symptoms. Bender (1947) gives the opinion that drugs can assist in maturational change. The effects of drugs on cognition, especially in a population which needs to have learning enhanced, are conflicting (Eisenberg and Conners, 1971; Campbell, 1975). However, there is a place for a potent, therapeutically effective drug which assists the child in functioning.

The classification of drugs used with this population can have sedative or excitatory properties. Stimulants are those of methylphenidate and the amphetamines. Bradley, the originator of stimulant therapy, reported that shy, withdrawn children benefited from the use of stimulants. The use of stimulants in the autistic child is reported to exaggerate the psychosis (Fish, 1971). L-amphetamine may be less disorganizing than d-amphetamine (Campbell, 1973). Antidepressants have been tested in autistic children (Campbell et al., 1971. Imipramine was noted to be a poor drug in spite of its having some sedative and stimulating properties in these children, but effects of increased alertness, eye contact, and responsivity lasted only briefly (Bender and Faretra, 1963; Fish et al., 1969).

Hallucinogens, specifically d-lysergic acid diethylamide (LSD-25), have been used to promote stimulation (Simmons et al., 1966; Freedman et al., 1962. The results showed a variable course in response to treatment, with increased stimulation in some cases and decreased stimulation in others.

Tranquilizers and neuroleptics, sedative effects predominating, have been used extensively. Hypnotics and anticonvulsants may increase disorganization (Fish, 1975) and have serious effects on mental development in infancy (Cordes, 1973). Diphenhydramine has been reported to be the most efficacious of the mild sedatives (Fish, 1960), but is reported to be less effective than chlorpromazine (Fish and Shapiro, 1965).

Most authors agree that the major tranquilizers are the most effective drugs for these children. The phenothiazines, thioxanthenes, and butyrophenones are the three structural classes. Each have a useful, but limited, role in treatment. Chlorpromazine, a sedative type, is often used in children with acute psychosis, agitation, and assaultiveness. The young child who is more advanced in speech and other developmental areas seems to be less sensitive to the sedative effect of the drug. Children who are severely autistic, over 6 years of age, and with verbal IQ's below 70 respond better to trifluperazine. This drug is less sedating and more potent in this population. Another drug with stimulating properties and a large therapeutic margin is thiothixene. It is considered superior to the phenothiazines (Simeon et al., 1973; Campbell et al., 1970). In the class of butyrophenones, haloperidol is most frequently used. This drug has been reported to decrease agitation without sedation but has a high incidence of extrapyramidal side effects. Early literature reports fewer extrapyramidal side effects than with phenothiazines (Engelhardt et al., 1973), although those current reports are contradictory. Haloperidol is also found effective in withdrawn, assaultive, or self-mutilating patients (Faretra et al., 1970).

Side effects of these drugs especially the dystonic effects, are said to be more common in children. A rebound extrapyramidal syndrome has been reported following withdrawal of the antipsychotic drugs (Polizos et al., 1973). There are few extensive studies reported on the effects of long-term usage of these drugs in children, especially in relationship to an untreatable syndrome, tardive dyskinesia (Ebert et al., personal communication, 1977).

The use of anxiolytics, such as chlorodiazepoxide, can worsen psychosis. It can also precipitate an acute psychosis in a patient who has borderline schizophrenic features (Stores, 1975).

The administration of lithium carbonate to these children has been attempted, and results of its effectiveness are not consistent. One report notes that lithium had a sedative property with a narrow therapeutic margin. Sensitivity to low doses of lithium was the response of the child with greater mental retardation (Campbell et al., 1972). A decrease in symptoms of hyperactivity, aggressiveness, and stereotypy has been reported (Gram and Rafaelsen, 1972).

L-dopa has been used for 6 months in a population of four autistic children without positive behavioral change (Ritvo et al., 1971). Tri-iodothyronine (T_3) was used by Sherwin et al. (1958) on two autistic boys. They noted increased alertness and social contact, decreased stereotypy, and stimulation of speech. Campbell and Fish (1974) state that this drug is one of the most effective agents used by their group, especially with respect to speech, attention span, and communication measures. Variable biochemical responses included increased TSH response and delayed T_3 response.

Megavitamins have been used since the reports by Hoffer (1970) that ascorbic acid and niacinamide seemed superior to placebo. These findings were not confirmed by Greenbaum (1970) or Roukema and Emery (1970). A report on 190 autistic outpatients showed that 37 children with "classical infantile autism" showed the greatest response. The conclusion by the American Psychiatric Association task force was that megavitamin therapy was of no value.

As with the other forms of therapy noted in this chapter, we must ask about effectiveness. That question cannot be answered at this point. More well-designed and controlled studies must be done before the effectiveness of drug treatment in this population is clearly answered.

Alternative Therapeutic Approaches

Another therapeutic approach can be classified under body manipulation (Wenar and Ruttenberg, 1967). These authors discuss the therapy of inducing infantile rage. Zaslow felt that autism was due to a maternal mishandling of infantile rage. The therapeutic technique was to induce rage by restraining the child and then being firm and soothing to facilitate rage reduction and quiescence. Ruttenberg reports that other theories stress that the autistic child has failed to develop a basic body image, that is, differentiate between himself and the external world. Here the emphasis is on the use of pleasurable stimulation to develop the realization in the child that certain sensations are uniquely his and to make him aware of the rewarding experience of another human being. Schopler (1962) believes autism is a result of sensory deprivation and can be corrected through the introduction of much stimulation. In contrast to this is a reportedly successful treatment known as sensory isolation therapy (Schechter et al., 1969). This form of therapy is based on a theory regarding autistic defenses. It was postulated that the autistic defense is directed at overwhelming outer and inner stimuli. "The defense withdrawal is utilized repeatedly to cope with these stimuli and eventually becomes generalized to any and all stimuli" (Schechter et al., 1969). With this method, the child was placed in a barren, small, dimly-lighted room with a masking noise. It was hoped that the need for defenses would decrease in this environment and that a desire for more stimuli might occur. Therapists visited 15 minutes a day, twice a day, for 3 months. The children were reported to be very contented, and they dropped many of their autistic defenses. Much more eye contact was noticed, and they responded in a loving way to their parents. After the treatment they made significant progress towards developing more satisfactory relationships. They also increased social and intellectual skills. Apparently a desire for human contact was not only developed but maintained. Maier (1970) did a very similar study on what he termed sensory deprivation therapy. Some significant trends and changes in behavior were noted. For instance, the child accepted comfort more readily and appeared less afraid of his surroundings.

The somatic therapies are one aspect of the treatment approach. As yet, they have not demonstrated a superiority above any other treatment modality reported in this chapter.

SUMMARY

It appears that the results of treatment approaches of different theoretical orientation are not directly comparable. It is difficult to evaluate results when one is dealing with an objective *measurable* change in behavior or a subjective nonquantifiable feeling about *possible* changes in behavior.

Lovaas (1968), in comparing the differences between behavior theory and psychoanalytically oriented formulations, states that "when considering the differences between the two formulations on a conceptual level, a most important one lies in the fact that our data cannot be derived from psychodynamic formulations. The translation of psychodynamic theories to empirical operations is difficult. The most important differences by far, lie in certain methodological considerations and research strategies."

He goes on to draw a distinction between the levels of empirical intervention. "We place immediate demands on the child and he has to learn to cope with reality at the level at which we present it to him. Relationship variables are central to our work, as they are in psychodynamic treatments. However, we prescribe such variables in contingent form. There will be no growth without responsibility. We do not allow for expression of pathological behaviors but actively suppress these expressions."

In all the treatment modalities noted in this chapter, the outstanding conclusion is that each child is individual in his response to treatment methods. Therefore we can conclude that the best and ultimate treatment for autistic children can only emerge from a combination of the better, more effective methods of pharmacology, psychodynamics, and behavior modification. What "works" in terms of the specific or global treatment methods is what should be further researched and applied. It is encouraging that the current trends in treatment for autistic children seem to suggest a merging of the three outstanding modes.

3
Method of Evaluation and Implementation

INTRODUCTION

Many of the controversies attendant to *the* cause or *the* treatment of severely disturbed children and, in particular, autistic children have begun to be modified towards consideration of multicausal, reciprocal events. As these considerations expand, the rate of change in complexity of approaches to evaluation and treatment is exponential. The basic problems of attending to this complexity require understanding the relationships of individual elements of various approaches, developing a shared yet broader perspective on the problems, and adapting these understandings to more effective methods or agencies of change and treatment. Obviously, continuing substantive research to multifactoral causation will influence subsequent theory and models of treatment (Renwick, 1973). Perhaps more precise attention to individual components of the system will be followed by greater integration into a structured whole. This chapter will focus on the concept of systems as they relate to approaches to the evaluation and treatment of these children. It will not discuss the role of models in a more than perfunctory manner, and the reader is referred to other sources for greater detail (Stogdill, 1970; Gedo and Goldberg, 1973; Havens, 1973; Mihram and Mihram, 1974; Morrison and McKinney, 1977).

The phenomena of life cannot be resolved into elementary units. It depends on the interactions among components. The origin of a general systems theory was by Von Bertalanffy, who stated that the theory was to formulate and derive principles of systems based on a formal logical mathematic field. In his book, *Problems of Life,* he states (Von Bertalanffy, 1949, p. 20):

> It is not only necessary to carry out analysis in order to know as much as possible about the individual components, but it is equally necessary to know the laws of organization that unite these parts and partial processes and are just the characteristic of vital phenomena. Herein lies the essential and original object of biology. This biological order is specific and surpasses the laws applying in the inanimate world, but we can progressively approach it with continued research. It calls for investigation at all levels: at the level of physicochemical units, processes, and systems; at the biological level of the cell and multicellular organism; at the level of supra-individual units of life. At each of these levels we see new properties and new laws. Biological order is, in wide measure, of a dynamic nature . . .

DEVELOPMENT OF SYSTEMS

As with any field in its early development, logic rather than value terms was perceived as clarifying theory. Currently, the context of human social systems is necessitating a complementarity between the roles of logic and values. Isolation of the social and cultural contexts from the biologic or psychodynamic theories of the development or expression of autism may make these theories more or less acceptable to component subgroups. Dogmatic defense of these theories based on preconceived notions of values and priorities may be "logical" or "rational." However, it belies the scientific method of investigation and prohibits a coherent analysis of these theoretical divisions.

Katsenelinboigen (1974) speaks to the issues of the formation of systems with uncertain purposes other than to function efficiently. He states "potential we define as a set of parameters which characterize possibilities for the motion of the system when it is impossible to know the concrete moves of the system" (Katsenelinboigen, 1975, p. 50). The appeal of systems theory approaches to multiple problems is not only in its ordering but in the isomorphic applicability of the formal models. Characteristics of a system are not dependent upon the meaning of component variables and parameters. There are various conceptual systems in general systems theory and, as with theorists in the study of autism, these conceptual systems differ in multiple aspects (Lazlo, 1972; Sutherland, 1973; Von Bertalanffy, 1968; Forrester, 1968). Plaguing both fields is the need for some consensus to be reached on fundamental issues.

Essentially, in viewing the study of autistic children, historical validity and contemporary relevance should guide our conceptions of systems theory and its applications. Systems theory applied to this area should bridge philosophical experience and scientific analysis as well as the subsequent process of change. Future directions of change in the system cannot, however, depend on a rigid application of systems theory. Response or lack of response does not insure success or failure. More logical methods of change require development. Evaluation of measures and reassessment of the reliability and validity of parts of the model change system is an evolutionary process. It is dependent on the holistic goal. Modification of the moves or objectives utilizes current and future resources in concert with the definition of resource capability and demands required to reach the objectives. Changing a system requires an understanding of that basic system (Miller, 1965).

A systems approach (Points, 1971a, 1971b; Grinker, 1975) is not only a demographic, epidemiologic, computer, or cost-benefit analysis. It is not only operational or managerial. Quality therapeutic rehabilitation and quality maintenance—a *realistic* assessment of needs as well as independent capability of functioning—requires a group organization that can maximize both situations. Quade (1969) further clarifies the use and potential of systems. In his discussion of a "systems approach" he states:

> What do I mean by a systems approach? It is not a method or a technique; nor is it a fixed set of techniques; but rather it is a concept, or a way of looking at a problem . . . it is a practical philosophy for carrying out decision-oriented interdisciplinary research, a perspective . . . to aid a decision-maker faced with complex problems of choice under uncertainty.

The subdivision of a system aids in reduction of the complexity of the problem. It permits an understanding of components that can be altered or that are evolving in a system. Always, in working with systems as they apply to human problems, the relationships that characterize interactions between subdivisions need to be identified. Hall (1969) further defines inherent phases in the development, or engineering, of a system. The inclusion of knowledge characteristic of the specialized contributions of workers in the field is the *dimension of knowledge*. The conceptualization of the process of systems development from initial ideas through final completion is the *dimension of time*. Categories of definition of problems, synthesis and analysis of the system, decision making, and implementation of action are included in the *dimension of logic*.

The phase of dimension of logic (Kuhn, 1974) seems to be most applicable for discussion in this chapter. In this subphase, all steps interact on a mutual basis. The phase of program planning initially considers definition of the problem by the group of people affected by the problem under consideration. There is a basic requirement in this phase: the existence of an "organization" which utilizes a collective approach for the problems of children who have not responded to efforts of singular problem solving. A second requirement is that of the availability of resources for initial and later planning and action phases of intervention. Changes in these resources for optimal functioning will result from decisions made at each step in treatment. In terms of structure of a program and the performance over time, multiple objectives must be defined. Each problem must have an objective to be changed. Criteria of success or failure must be developed. A knowledge of the interrelationships of these objectives and the utilization of results includes consideration of the constraints in the system.

The synthesis of the system delineates descriptive approaches for the attainment of the specific objective, while systems analysis defines the information obtained from synthesis. The consequences of alternative planning in analysis of the system demand a statement of the optimal alternative available to the team. The allocation of resources and programs for further planning heralds the implementation of the action aspect of system approaches.

DEVELOPMENT OF STRUCTURE

There is no single objective in the task of working with the severely disturbed child. The complexity of multiple objectives requires the use of structuring. Units of organization must be conceptualized for individual goals as well as the final goal. Concepts of a singular objective and a corresponding time scale often cannot be realistically followed. Multiple interdependent objectives lead to consideration of progress in each objective. This progress is considered as a success criteria rather than success criteria dependent only on reaching the ultimate goal. Asking questions of procedure or reason clarifies alternatives for a specific program. Pursuit of one objective does not imply that others cannot be initiated, modified, or terminated simultaneously. This flexibility is especially beneficial in the discovery of interrelationships not available in a one problem-one objective approach.

As will be noted in Chapter 7, a legislative act established the Project for Psychotic and Neurologically Impaired Children described in Chapter 4. With the mandated objectives of any legislative body, precise intentions in formulation of legislation were not clear. Subsequent systems approaches permitted project and program planning with current refinements of the system being an evolutionary process. Identification of the basic social units included determination of the process of coalition formation to be discussed in detail later in this section. Rapaport (1959) characterizes a conceptual framework relevant to the structured functioning of human systems, including coalitions. Game theory (Von Neumann and Morgenstern, 1953) consists of several theoretical approaches. Strategy games or games in extensive form are comprised of the rules of the game which determine subsequent events. Description of the response of an individual player in varied circumstances during the game is labelled strategy and involves choice as related to the best outcome (security) or value. Pooling of strategies, or coalitions, requires greater communication and cooperation to reach the most acceptable level of change within the total system. The relevance of game theory to this chapter is to assist in uncovering the assumptions we hold when we conceptualize acceptable evaluation and treatment. The ethical questions posed by definition of treatment programs can be explored by the use of game theory. These game theories offer solutions for problems by clearly defining assumptions of treatment models and pointing out problems of reaching acceptable goals.

The further development of theory in the formation of coalitions was described by Gamson (1961). The refinement of the definitions of coalitions included the consideration of alliances which were task oriented and temporary as well as the grouping and joint use of resources. A "complete" coalition in his view required the presence of more than two social units, the absence of sufficient resources by an individual having total control over decisions, the need for multiple alternatives to maximize outcome, and the lack of the power of veto by an individual.

These conditions were further refined by Warfield (1976). His concerns were that before a decision could be made to form a coalition, multiple decisions are required on the part of each social unit and subsequent conditions for the formation of the coalition need to be adapted to this concern. He felt that mutual agreement was needed and this decision to coalesce would begin with negotiations based on whether positive outcome was attainable. An explicit structure would accurately reflect the social unit objectives and the supportive relationships among the objectives. Finally, conversion of the individual social units would also be based on consideration of a joint structure of intent as well as a joint structure of conflict.

Progress of the structures can be viewed in the light of analysis of the cycles within those structures. If one social unit of the coalition can support achievement in other parts of the social unit through achieving an objective, a mutual support relationship exists. If a value decision is made to reallocate evaluation or treatment resources, thus moving into making attainment of another group objective more difficult, these cycles can either inhibit progress or automatically enable the completion of a subobjective more realistic. Another type of cycle assists in regulating the frustration inherent in the coalition. Thus, coalitions can utilize the intensity of the support system to outweigh the intensity of the cycle of frustration. Continued friction, if not recognized by the coalition, can threaten the underlying structure and increase the chance for failure of the system.

ADAPTATION OF THE SYSTEMS VIEWPOINT

The subsystems characteristic of most evaluation and treatment environments follow those of Allport (1960). The "closed" system is a self-contained system. The severely disturbed child and family, pretreatment, have little interaction with the environment, and there is little possibility of restorative change from external forces. The goals of treatment systems can be categorized. Initially the system is geared toward permitting exchange between the internal and external states by active processes. Development and subsequent maintenance of these relationships then enables less disintegration of the internal functioning by the intrusion of the external states. As effective treatment continues, increasing complexity and differentiation leads to increasing order in behavior over time. What appears to begin as entering stimulus and subsequent response is now a more continuous exchange with the environment, a greater degree of mastery, and perhaps even motivation.

The transition from the first to the fourth goals can be seen as a transition from passive (idea) to active (plan) and objective (change). The structuring of the goal requires definition of the goal in relationship to the social space of the affected group–child, family, community, and agents of change. Acceptance of a plan is final only in the initial step in the change procedure. The flexibility of the adequately functioning system comes from investigation of the effects of subsequent actions, whether alteration is necessary, and formulation of stepwise procedures based on prior results. Discrepancies between the direction of each step and stated goals should provide the impetus for modification of plans. Realistic determination of the roles of interdependent members in the process permits the consideration of the effectiveness of the process both on the external and internal (agents of change) environments. The linkage between these environments is the feedback system which evaluates the discrepancies and leads to change in action and planning. Feedback, in order to be effective, must be frequent, must be composed of essential facts, and must lead to furthering of system goals.

The development of a system whose purpose is the exploration of adequate treatment modalities and environments, both inpatient and outpatient, urban and rural, needs to follow several basic principles. First, the treatment team, or the agent, must have a desire for some event or state of functioning in terms of the future. The second point is the definition of the current pattern of functioning of the child, the family, and the community as a baseline for completion of the first task. The last point is the explicit or tacit understanding (belief) that the planned program will be efficacious as a means of realization of future states of function. Parents, educators, and communities, lacking in alternatives for definition, management, and goals, exhibit "irrational" and "illogical" responses to the reality of the confusion characteristic of dealing with the situations of severely disturbed children.

IMPLEMENTATION

If the dynamics of the system and its subsequent development are based on psychologic need, the definition, implementation, evaluation, and control of the system are based on scientific need (Ackoff, 1972). The most elegant plans are meaningless without implementation. Implementation is never done without disturbing the homeostasis of the index system. Transition is a key word that, without support, can disrupt the most enthusiastic programming. It is also a key word in the task of evaluation and the mechanisms developed for the continuous process of system change. Definition, or description, of the ideal existence is thinking in depth about the future attainment of the group and the affected child. Achievement of the ideal, predicated on the belief that active intervention can improve the situation, requires a determination of the level of intervention needed. Disillusionment frequently occurs as all persons perceive a gap between performance and the ideal. Turmoil can easily result unless the system is capable of solving this crisis prior to continuing the programs.

Often overwhelming to mental health workers is the translation of identified goals and objectives into action (Parsons and Shils, 1951; Kast and Rosenzweig, 1972; Rosen, 1974). A systems approach would require the correlation of seemingly overwhelming aspects of the problem into a defineable whole. Often best illustrated by the game of chess, where a spectrum of moves is synthesized from a knowledge of the future impact of a move, the planning and implementation of goals requires a knowledge of alternative moves and sets of possible moves. Evaluation of the current state, or baseline, describes a pregoal determination. It is also a reflection of the state of nonaction, or what will continue to happen without intervention. Identification of what exists and what is hoped to exist sets the stage for the setting of goals and objectives (whether the ideal state or a close realization). If the goal is to increase eye contact, for example, on the way to the objective of increased attention to learning tasks, a program for eye contact is the translation of the goal into a measure that can monitor progress and indicate change. Abandoning the programs may be necessary but must be done with minimal disruption.

REGULATION

The central theme of cybernetics is the analysis of regulation, control, or direction in complex systems (Ashby, 1956; Hough, 1974). The relationships between the object and the surroundings are the main goal of a behavioristic approach. This is in contrast to a functional approach where the primary goal is the study of the "intrinsic organization of the entity studied." Underlying the process of change, and its greatest tool, is coordination and communication (Scheflen, 1969). Stein (1973) states that if general systems theory is the science of the dynamics and development of systems, cybernetics is characterized by the definition and control of the system.

Leadership, the total pattern of management, changes daily. The frictions between subgroups of individuals, crises, and the outcome of these crises frequently determine the program accomplishment. Understanding values and scientific aspects of a problem can be approached in concert with an objective analysis of the system (Lewin, 1947). Harmony implies a relatively stable system and is exhibited by a consensus of goals. Reduction of conflict, endemic to human systems, requires energy which is directed away from the subsequent goal and narrows the possibility for achievement of appropriate planning. Although we talk of ideal goals, recognition of acceptable levels of change will facilitate goal achievement, as will be seen in Chapter 9, adjusting or decentralizing the participation of one resource for specific subgoals. A systems approach may also permit the emergence of nonconflicting, more operative, and independently controlled plans. The consultant provides alternatives. Objectivity is the most important requirement in order to maintain the focus on actualization and self responsibility that is the key to planning and delivery. One must ascertain the ongoing processes to define the most relevant aspects of care and selection of methods and interventions.

SUMMARY

Rehumanization of any health care system is best illustrated by the use of a decentralized, team concept approach. Multifactoral processes of stress result in illness; a multifactoral approach to care and treatment can promote social, psychologic, and physiologic health. Accessible, anticipatory, and appropriate services would include establishing objectives and implementing programs to provide for the advancement of human potential.

This chapter has focussed on the theoretical aspects of the rise of systems approach. It serves as an introduction to the remainder of this volume where the process of the system is clearly defined and illustrated. A knowledge of various system methods underlies the development and presentation of subcomponents of the primary system, The Project for Psychotic and Neurologically Impaired Children. The subsystems of family, school, and community interventions are presented separately but are viewed in their interrelationships to each other and to the goals of treatment. The integration of this complex system is further delineated in the section describing the case of a child referred for evaluation and subsequent treatment. The responsibility of scientists in applying systems approaches to psychology and behavior, and the cautions in rigid adherence to these approaches, is summarized.

> . . . I believe that it is one of our responsibilities to be alert to the kinds of metacommunication, communication about systems analysis, which results from the use of particular models or the use of models for particular purposes. Thus the use of a world model may convey the idea, which is not yet generally understood, that the world is indeed an interconnected system and that events in one part of the world are significant just because they will have repercus-

sions in another part of the world. It may also convey the idea that the world is a closed system in which ideas of confinement, limits, and danger may accompany the use of the model . . . The idea of a closed system, even if there is stress on a dynamic equilibrium within it, may convey a sense of limits which are imposed, or will or should be imposed, not by the condition of the planet itself, but by men upon other men. Thus the use of the term "dynamic equilibrium," which today we hear frequently associated with the term "steady state" (where "dynamic" is used to counteract the unwelcome connotations of the word "steady"), may nevertheless lose all power to convey any idea of movement or change.

4

The Project for Psychotic and Neurologically Impaired Children

Childhood syndromes such as autism, childhood psychosis, brain damage, and mental retardation with emotional disturbance and "bizarre" behaviors have baffled both clinicians and researchers for decades. Children with such syndromes provide a sizeable population of children who are a diagnostic and treatment enigma. The Project for Psychotic and Neurologically Impaired Children (PPNIC) grew out of an awareness that services for autisticlike children in the state of Wisconsin were not fully meeting the needs of this population. In fact, most autisticlike children were being institutionalized in custodial care primarily in state and privately operated facilities for the mentally retarded where they required continual support and treatment at considerable expense. Some of these children eventually ended up in the children's unit of state hospitals because the severity of their behavioral problems or self-injurious behavior required special intervention. These children were often "lost" among the "acting-out" children on the unit and behaved relatively well as long as they were left in their own world and few or no demands were made upon them. It was unthinkable on the part of most schools in 1971 to consider a public school placement for such children, given that schools were only beginning to develop programs for the more typical acting-out emotionally disturbed child. It was within this environment and attitude that a small group of staff in a rather traditional state mental hospital drafted a proposal to treat such children in a special program—ultimately affecting hundreds of children, families, and school systems in Wisconsin. This simple proposal began with a plan to treat seven autistic children on a children's unit with special staffing as an experiment to assess whether these children were as "hopeless" as many felt, or if, in fact, the contemporary approaches being proposed by persons such as Dr. Ivan Lovaas in California and Dr. Donald Churchill in Indiana could not be applied in this facility, a clinical treatment unit, rather than a research or training facility with a primary university affiliation. Fortunately, the times changed quickly and shortly after a very successful piloting of the autistic program, the Wisconsin Legislature changed the name and the mandate of the parent facility from that of a state hospital to that of a mental health institute with a primary responsibility to treat the most difficult clients in the state. The facility was to emphasize community training, consultation to communities, clinical research, and to have a close affiliation with the University of Wisconsin-Madison in the training of its various mental health professionals. At the same time, the Children's Treatment Center of Wisconsin was merged with the Mendota Mental Health Institute, and a research project for six autistic children under the guidance of Dr. Robert Browning was integrated into a new residential community oriented, treatment/research unit for psychotic and neurologically impaired children. The birth of the new unit for treating autistic and autisticlike children was quick and the growth fast with the good fortune of a new state mandate for the development of community services, a rich staffing pattern, and an optimism among the staff that the PPNIC would meet their mandated goals and objectives.

Several assumptions underlay the philosophy of the new project. Probably the most important of these was the determination that the program, while beginning as an inpatient treatment facility, would not perceive its role as one of providing long-term residential care to autisticlike children in the confines of an institution. Rather, the length of stay in inpatient treatment would be short, meaning 6 to 12 months. A second assumption was that the strong push for total community treatment was no more reasonable as an alternative in a basically rural state than the belief that all such children should be institutionalized. Therefore, the project would try to develop a reasonable fine line of providing a short-term residential service and a consultation service to local community schools and mental health agencies. While the project was in the process of developing effective therapeutic programming such as eye contact and independent play for such children, many of those procedures could be taught to local community teachers at minimal cost and allow for the training of preacademic skills without the need for institutionalization. Therefore, the project was determined to admit for residential treatment only those children whose problems were so severe that the family needed training on behavior management and communication/language skills and/or the school system would not be capable of providing the remedial training without a period of residential care—essentially an assessment that consultation would not be adequate. A third assumption was that the child, whether a consultation case or an inpatient, was the responsibility of the parents, and that the project staff would function in a manner which would support that family system. Therefore, an extensive parent training program was developed to train family systems, not just parents, but grandparents, babysitters, siblings, and uncles and aunts when necessary, on the special child management needed for providing a growth oriented, predictable environment for the autisticlike child. This also meant becoming an advocate for the parents, but more often it meant teaching the parents how to become an assertive advocate for community services for their child.

A further assumption was that for the autisticlike child to return and continue living at home, a total community support system would need to be developed for that child as well as his parents. This can only be accomplished by a thorough integration and coordination of service provider agencies for the child and family. While most rural systems have but one or two such children in their county, their willingness to work with the child would depend on the positive support PPNIC could provide through meaningful training, consultation, and back-up support when necessary. The project staff would need to communicate that all the uniqueness of any individual child could in fact be reasonably accommodated in any school or agency without negative effects. A final assumption was that the program developed for all children be based on a thorough assessment of present strengths and that programming focus on the building, strengthening, and development of positive, pro-social skills in children. Most autistic children need to develop communicative skills, play skills, and numerous other functional self-help skills such as toileting, eating, and dressing. The more skills the children can be taught efficiently, the greater the probability of success in obtaining community agency cooperation upon discharge. Of course, it additionally provides a more positive and spontaneous independent life for the child who can now feel the joy and positive reflections of parents and staff for all the new appropriate skills developed. It was with these basic assumptions and philosophies that the PPNIC staff developed an optimism about autistic children and a sense of a "total systems" approach if such children were to be kept out of institutions. How to make such a system work is the purpose of this book. Unfortunately, having a philosophy and attitude about how autistic and autisticlike children should be treated does not translate into a reality in terms of actual delivery. Rather, it is through a special sensitivity to parents, teachers, school systems, mental health boards, and whoever else may be involved that one develops a "system" that works.

Before further elaboration on the development of that system, it would be helpful to describe the basic programming and the PPNIC as a treatment unit.

A central aim of the project is to provide intensive, short-term residential treatment so that the children may return home before "institutionalization" occurs. Accordingly, a large portion of the treatment regimen involves training parents to deal effectively with their children. Because consistency has been found to be very important in maintaining treatment gains after residential treatment, the children's future public school teachers are similarly trained.

While the project was designed as a research and community training unit to assess the effectiveness of the model described, it additionally serves as a training unit for psychiatric residents, psychology interns, and students in occupational therapy, social work, speech pathology, and education.

Another primary function of the project is to provide consultation and training to schools and mental health agencies throughout the state for children who do not need intensive residential care but where techniques developed at the Institute can be implemented directly into the community.

The children are characterized by hyperactivity, aggressions, temper tantrums, bizarre mannerisms, inappropriate social behavior, little or no language, inappropriate affect, and extreme negativism. The project consists of two teams, one working with six to eight children with low mental age who have extremely limited verbal skills, the second focusing on six to eight higher level children who have speech.

The project prefers to work with younger, preschool children (5–8). Potential admissions are screened so that only those children whose needs cannot be met in other less intensive, less specialized community-based treatment programs are admitted to the project. The program philosophy is that it is but one step in the total treatment of the child. Therefore, referring community agencies and family are actively involved during the child's stay on the project, with the goal being return to the community as soon as possible.

The project is intended to have a residential treatment program of approximately a 6-month duration. In special cases, as has been our past experience, it may be necessary to extend that time interval until a most ideal discharge disposition has been advanced. While the child is in residence, both treatment and research is directed at: (1) identifying the nature of each child's behavioral deficits and strengths; (2) designing, implementing, and evaluating programs to decelerate unique and abnormal behaviors and to accelerate the frequency of more appropriate, pro-social behaviors; (3) designing, implementing, and evaluating formal programs to train parents; and (4) designing, implementing, and evaluating programs to train teachers.

The project consists of a treatment and evaluation staff of two psychologists, two social workers, three special education teachers, a speech pathologist, an occupational therapist, a research analyst, six psychiatric nurses, and 16 child-care workers. The project also has a half-time psychiatrist and a pediatric neurologist quarter-time. A child-care worker or nurse is assigned as case manager for each child and is responsible for checking on and maintaining programs and schedules for his/her child. This person has shared responsibility with the social worker for the liaison between parents, community agencies, and the project.

The ultimate goal of the program is to train the child to be acceptable to his parents and community by making him more manageable, self sufficient, and socially active. The immediate goals include the development of language, compliance, eye contact, visual-motor skills, gross-motor skills, and specific self-help skills, as well as the reduction of the referral behaviors. Because the children vary widely in their abilities, each child's program is developed individually, to meet his specific needs.

The residential treatment sequence begins with a week of observation, during which impressions are gathered about the child's typical functioning. A week of baseline counts of appropriate and inappropriate behaviors follows, along with the identification of reinforcers such as food and play items. Treatment programs begin during the third week of the child's residence. Shortly thereafter parent training begins and continues biweekly, first at the Institute and then in the parents' home. Approximately 3 months prior to discharge, the training of community teachers begins and continues until final transition to the community is complete. Throughout the child's residence, each child goes home on weekends to promote transfer of behavioral improvement to the home setting. If distance is great, children go home every other weekend. The child is thus prepared to adjust to a community environment that has been prepared for his return.

MAJOR PROGRAM COMPONENTS

Behavior Management

The children who are referred to the project exhibit behaviors which traditionally have been associated with autistic children. These include lack of eye contact, bizarre mannerisms, and little or no language development. However, most also exhibit severe behavior problems which prevent less specialized community based treatment programs from effectively treating them. On admission to the project, children typically are noncompliant and highly aggressive and also display many temper tantrums and bizarre mannerisms.

The treatment strategy found to be the most effective for treating these behavior problems is twofold. First, through the use of rewards, appropriate prosocial behaviors such as compliance and independent and cooperative play are developed. These newly established behaviors are incompatible with inappropriate negative behaviors. Secondly, when the child does display inappropriate behavior such as noncompliance or a temper tantrum, the child receives a time-out from reinforcement. Depending upon the specific time-out treatment program, he may be taken to a quiet room for 1 or 2 minutes or he may be told to sit quietly on the floor for 1 or 2 minutes.

Prior to discussing the effectiveness of each of the treatment programs, the rationale behind the time-out from reinforcement approach, as used on the project, will be outlined in detail. A major aspect of a time-out procedure involves the removal of the child from the situation following inappropriate behavior. The effectiveness of such a treatment program is to a large extent determined by the rewarding or reinforcing qualities of the environment. For example, if a child receives relatively few rewards from the environment for displaying appropriate behavior, a time-out or removal from that environment would have little meaning to the child. Further, the child may even deliberately exhibit negative behaviors to receive attention from the staff associated with receiving a time-out. Alternately, if the child receives a high number of rewards from those in his environment for his appropriate behaviors, a time-out or loss of opportunity to receive rewards, would be expected to be meaningful to the child. In short, the child would work to avoid displaying those behaviors which remove him from the rewarding situation.

In summary, a time-out approach would be expected to be most effective in an environment in which the child receives a high number of reinforcers. The treatment approach employed by the project is uniquely designed to provide such an environment. Most treatment programs used to develop appropriate social behaviors as well as programs designed to develop academic, language, and self-help skills are based on shaping principles. Initially, the child learns to perform prerequisite behaviors. When the child learns the basic skills, progresssively more complex skills are taught until he attains the desired level of performance. Each day, the child receives one or two 20-trial therapy sessions of each of his treatment programs. During these sessions, for successful trials (*i.e.,* those trials in which the child performs the desired behavior) the child receives small edibles and praise.

For the purpose of treatment, the negative interfering behaviors are separated into four major categories: noncompliance, aggressions, temper tantrums, and bizarre mannerisms. Each category is specifically defined. For example, for each compliance trial, the child is asked to perform some simple nonacademic behavior such as "stand up" or "put the book on the table." If the child begins to comply within 5 seconds of the command, it is defined as compliance behavior. It the child does not begin to comply within 5 seconds, it is defined as noncompliance. Aggressions are defined as each instance of hitting, biting, pinching, and pulling, directed at another person. The temper tantrums are defined as each instance of hitting or slapping which is directed at himself as well as behaviors such as stamping one's feet and throwing objects. Finally, bizarre mannerisms include stereotypic behaviors such as hand flapping, finger flicking, and crotch-holding. Such specificity is necessary for both the measurement and treatment of behavior problems.

Prior to implementing treatment programs, baseline data is sampled for a period of at least 3 days. On each sample day, the behaviors of each major category—compliance (trials/success), aggressions, temper tantrums, and bizarre mannerisms—are counted throughout the (12-hour) day. Following the implementation of the treatment programs, data indexing the rate of behavior for each category are sampled each week in the same manner.

The compliance treatment program involves reinforcement for compliance behavior and a time-out following noncompliance behavior. In order to help the child develop the appropriate behaviors, following each compliance trial the child is told specifically why he was reinforced or given a time-out. For example, following the command, "Scott, put the book on the table," if the child was compliant, he would receive rewards and praise, such as "that was good putting the book on the table." Alternately, if the child was noncompliant he would receive a time-out, and staff would say, "Time-out, Scott, you didn't put the book on the table."

Although appropriate social behaviors are spontaneously reinforced throughout the day, treatment programs designed to reduce aggressions, temper tantrums, and bizarre mannerisms primarily involve time-out from reinforcement procedures. As with the compliance program, the child is told specifically why he received a time-out.

In order to evaluate the effectiveness of each treatment program, a multiple baseline approach is used. In this approach treatment programs are implemented for particular behaviors while other behaviors are sampled but not treated. Typically, the compliance treatment program is initiated first. When a successful treatment effect for compliance behavior is observed, the aggression treatment program is implemented, followed by the temper tantrum treatment program and the bizarre mannerisms treatment program. Data indexing the pretreatment baseline levels and the posttreatment levels of the four behavior categories were sampled weekly for the 12 children admitted to the project in 1973. Figures 4-1, 4-2, 4-3, and 4-4 illustrate the effectiveness of the compliance, aggression, temper tantrum, and bizarre mannerisms treatment programs, respectively. As the figures indicate, all four programs were highly successful with the children exhibiting significantly increased compliance behavior as well as large decreases in the frequency of aggressions, temper tantrums, and bizarre mannerisms. For the compliance, aggression, and temper tantrum programs in particular, dramatic changes in the child's behavior occurred during the first week of treatment, and these changes were maintained.

In addition, it was expected that the effects would occur more slowly for bizarre mannerisms than the other behaviors; although the children vary widely in the frequency of bizarre mannerisms they exhibit during the pretreatment baseline period (ranging from 350 to 2200 per 12-hour day), the total is typically much higher than the pretreatment frequency for noncompliance, aggression, and temper tantrum behaviors. In order to ensure that the environment remains relatively positive for the child, bizarre mannerisms are broken down

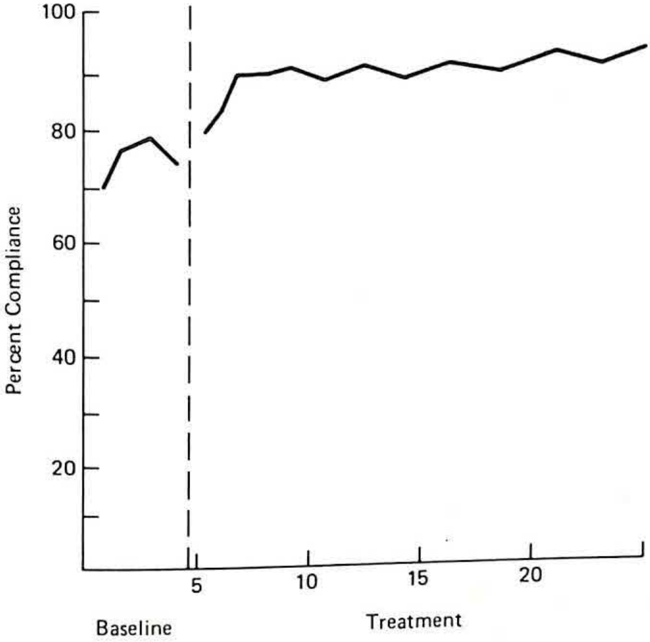


Figure 4-1. Compliance program.

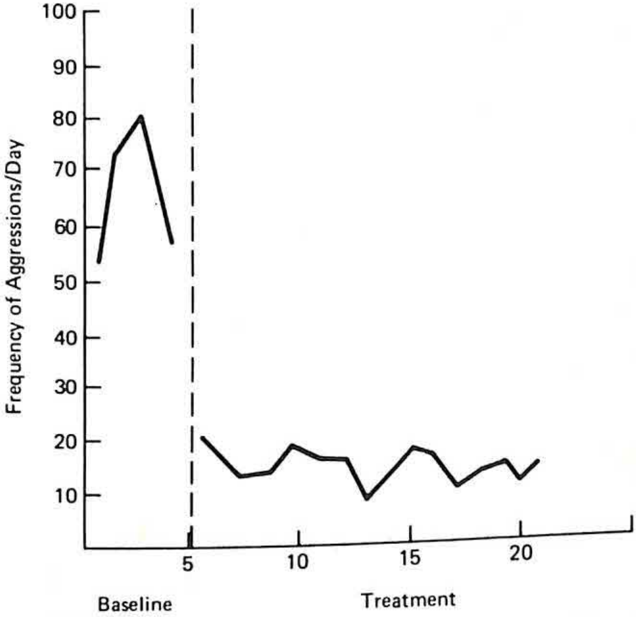


Figure 4-2. Aggression program.

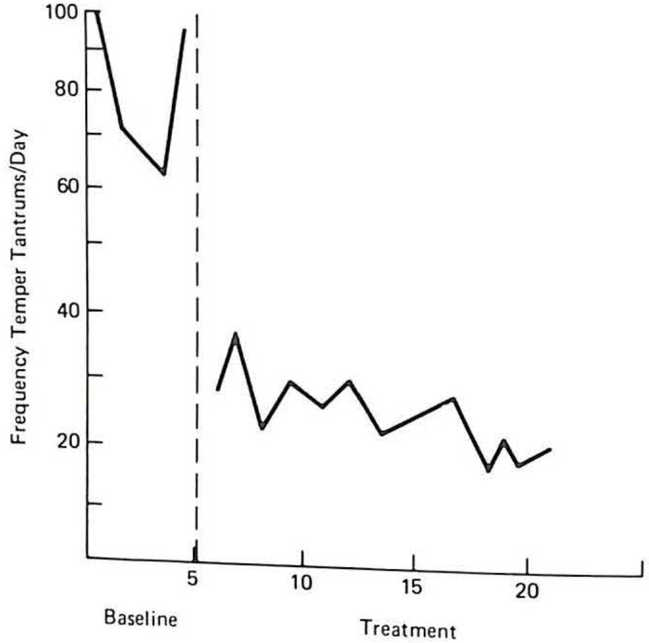


Figure 4–3. Temper tantrum program.

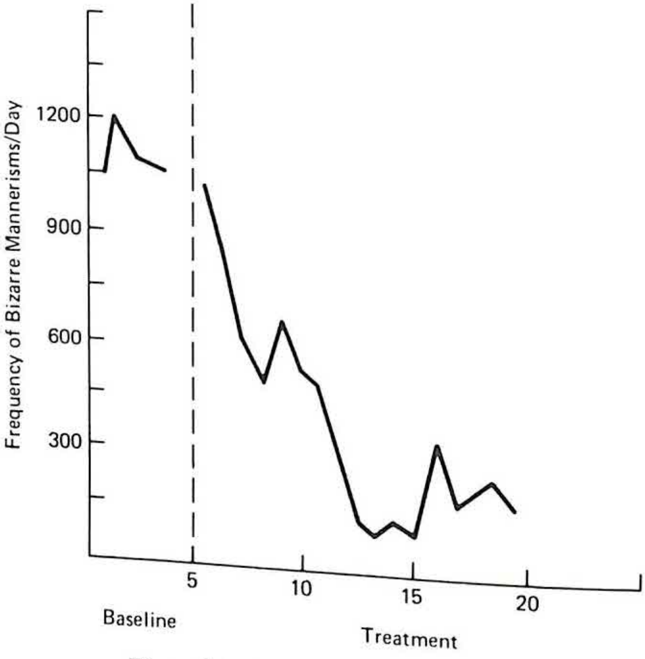


Figure 4–4. Bizarre mannerism program.

into separate categories, and the child is treated for one new bizarre mannerism at a time. When the frequency of that bizarre mannerism is significantly reduced, a second bizarre mannerism is also treated. This process is repeated until all bizarre mannerisms are significantly reduced. In addition, several of the bizarre mannerisms such as facial grimaces occur at such low levels that the children have a difficult time discriminating these behaviors and therefore the treatment effects occur more slowly. It should also be emphasized that most stereotyped behaviors are reduced by the teaching and training of imcompatible behaviors.

Language Programming

The children who are admitted to the project vary widely in their language abilities. There are, however, three general groupings which characterize much of the children's expressive language skills. These include essentially nonverbal children, children who use one or two word utterances, and children who use simple sentences but have not developed appropriate conversational speech patterns of children their age. In addition, many of the children in the second and third groups have unintelligible speech, primarily caused by slurred and/or imprecise articulation, low vocal intensity, and high pitch.

More specifically, children who are included in the first group may emit a few speech sounds, but emit these sounds in a babblinglike manner, with no meaning or intent. The speech musculature of these children is not deviant, but due to lack of use, it is weak and unable to make the precise movements necessary for clear articulation.

The second group of children exhibit two-word strings which are typically noun-verb or verb-object phrases. The children use these utterances to indicate their needs rather than for social interaction. Some of the children are capable of using higher level grammatical structures such as noun-verb-object, but these must be elicited.

The third group of children use spontaneous language for appropriate social interaction with adults and other children. They are capable of using complex sentence structures with compound phrases. However, the most common syntactical structures used are simple sentences having a noun-verb-prepositional phrase or a demonstrative-verb-noun combination. Interrogatives are rarely used. In addition, the children have an inability to sequence sentences in a conversational manner.

In addition to the speech patterns which characterize the three groupings, the children also exhibit bizarre speech patterns such as adding words or reversing words or syllables in words. Some also exhibit echolalic or perseverative speech. The pattern of echolalic speech exhibited by the children varies widely.

All children who are admitted to the project have some delay in language development, with some exhibiting speech patterns 3 to 4 years below their chronological age. The treatment goals, and therefore the language programming, must be designed specifically to meet the needs of each child. During the first week following admission, the language skills are developed.

In general, the major goals of language programming are first to increase the child's ability to indicate his needs and wants, and, when this is accomplished, to develop language as a means of social interaction. The development of language for both of these functions—expression of needs and as a means of social interaction—is of primary importance for the successful return and maintenance of the child in the community. With these language skills, the child can positively interact with his environment to meet his needs rather than through the use of negative behaviors such as aggressive behaviors and temper tantrums. In addition, the child receives rewards such as praise and attention from the significant people in his environment such as his parents and peers for exhibiting these appropriate social behaviors.

The language programs form a developmental sequence as illustrated in Figure 4-5.

As illustrated in Figure 4-6, the first technique used in the development of expressive language skills is gross motor imitation. Imitation is considered a primary prerequisite skill which the child can use to learn appropriate speech. When the imitative response is established, speech exercises involving tongue and lip exercises are conducted. These involve much finger imitative skills. When this is completed, the child can begin to produce new sounds with these speech musculature movements.

The first example of a language program is one designed to develop sounds with a nonverbal child. It is based on imitation and involves tactile, visual, and auditory cues. In the first part of the program, the therapist physically manipulates the child's lips, mouth, and tongue into position to make four sounds (/a/, /u/, /t/, /p/). The second part of the program is designed to elicit the sounds from the child without the use of physical manipulation. First, the therapist gains the child's attention by calling his name, and, for example, says "say a." If the trial is successful (*i.e.*, the child responds within 2 seconds with the required sounds), he receives social and primary reinforcement. If the trial is a failure (*i.e.*, the child does not respond within 2 seconds or does not make the required sound), the therapist manipulates the child's lips, tongue, and mouth to produce the sound as in the first part. The data illustrated in Figure 4-6 is for one child who did not have any of the four sounds (/a/, /u/, /t/, /p/) before the program started. She did, however, have other sounds (/b/, /d/, /i/, /m/). The sounds are established in the following order: /a/, /u/, /p/, /t/. The criteria for introducing a new sound is 85% success on three consecutive (20-trial) sessions. To investigate for maintenance of previously learned sounds, after each new sound is established, all previously learned sounds are presented in random order and the child's performance evaluated. The data in Figure 4-7 indicate that for

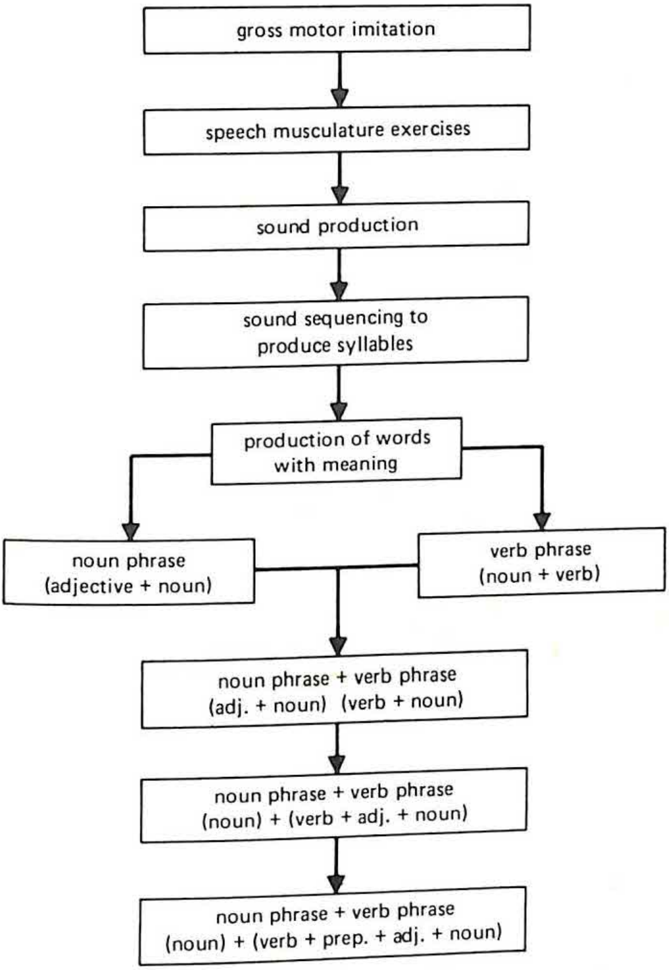

gross motor imitation
speech musculature exercises
sound production
sound sequencing to produce syllables
production of words with meaning
noun phrase (adjective + noun)
verb phrase (noun + verb)
noun phrase + verb phrase (adj. + noun) (verb + noun)
noun phrase + verb phrase (noun) + (verb + adj. + noun)
noun phrase + verb phrase (noun) + (verb + prep. + adj. + noun)

Figure 4–5. Diagram of the developmental sequence of language programs.

this child, the vowels /a/ and /u/ were established more quickly than the consonants /p/ and /u/. However, once established, all sounds were easily maintained.

In the final part of the sound production program, meaning is added to the sounds by eliciting the sound in response to the presentation of an object and asking the child to say what it is. For example, for the sound /b/, a ball or boat is presented and the therapist says, "This is a ball. What is this?", and the child is to respond with the sound /b/. Like many of the language programs, when the child completes the in-session program, the staff continues the program *in vivo* throughout the unit in order to generalize the program to new people and new objects.

After developing sounds which have meaning when associated with objects,

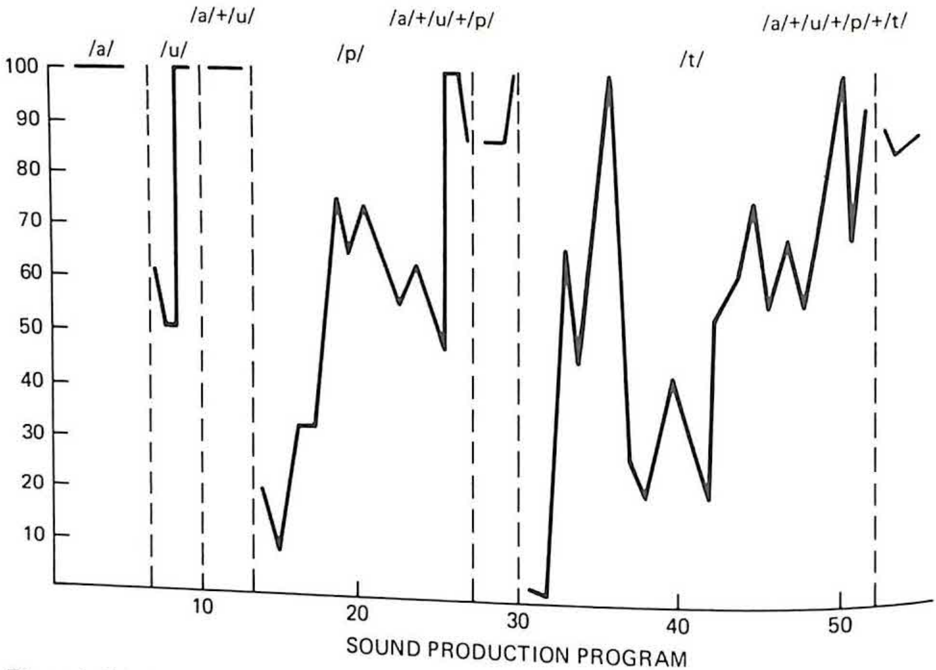


Figure 4–6. The percent of successful trials per 20-trial session during the development of /a/, /u/, /p/, and /t/ sounds.

SOUND	CRITERIA SOUND PRODUCTION
/a/	ah as in b*o*ttle or p*o*t
/u/	oo as in b*oo*t
/p/	p as in *p*at
/t/	t as in tie

the sounds are sequenced into syllables and then into words. More words are then developed to increase the child's functional vocabulary.

Since many of the nonverbal children develop sounds very slowly and take even longer before they start using these sounds in a meaningful manner, other language programs are introduced to develop behaviors to help the child communicate with his environment. The second example of language programs, the YES-NO response program for nonverbal children, is designed for this purpose. The first part of the program involves motor imitation of shaking the head to indicate yes and no. Part two involves verbal cues. The therapist obtains the child's attention and says, "Shake head yes." If the trial is successful (*i.e.*, child responds within 2 seconds and shakes head yes), he receives small edibles and praise. If the trial is a failure (*i.e.*, child does not respond within 2 seconds or does not shake head yes), the therapist models the response as in the first part.

The third part of the program involves the child answering questions about specific pictures. In this part, the therapist presents the child with a picture or object that he knows. The picture or objects used typically are drawn from receptive identification programs which the child completed earlier. For example, the therapist presents a cup and says "Is this a cup? Shake head yes." The model is given a second time and then the question is given. As in the second part, successful trials are rewarded, and following unsuccessful trials the correct responses are modeled. In the final part, the staff continues the program *in vivo* through the unit. Criteria for movement from one part to the next is 85% successful trials on three consecutive (20-trial) sessions. Figure 4–8 illustrates the progress of one child through part two (YES + NO) and part three (YES) of the program. The data indicate that for this particular child it was much more difficult to develop YES-NO responses to questions rather than to follow verbal cues. Many of the children who can motor imitate but not make sounds are taught signing as a major means of communication.

Following the development of meaningful words, vocabulary is expanded by a noun labeling program. The child then progresses through a number of programs designed to increase the number and type of words used. The programs are designed to develop noun phrases (adjective-noun) and verb phrases (verb-object). After the child has successfully completed these programs, three word phrases (noun-verb-object) and four word phrases (adjective-noun-verb-object or noun-verb-adjective-object) are developed. Finally, prepositional phrases are incorporated into the sentences in the form noun-verb-preposition-adjective-noun.

The third example of language program is a word expansion program designed to develop noun-verb-adjective-noun phrases. This program is used after the child successfully completes the noun-verb phrase program. In the first part of this program, the therapist shows the child an action picture such as a girl riding a bike and models the appropriate response by saying, "What is girl doing? Girl is riding blue bike," and then asks the child, "What is girl doing." If the trial is successful (*i.e.,* child gives the entire response), he receives small edibles and praise. If the trial is unsuccessful (*i.e.,* child does not give the entire response), the therapist prompts the response by saying, "Say the whole sentence." If the child is still unable to give the correct response, the therapist models the response for him. Each session consists of the presentation of the 15 action pictures; criteria for successful completion of this part are three consecutive (15-trial) sessions of 85% successful trials for the 15 pictures. In part two, the child is presented with 15 new action pictures which can be described using the nouns, verbs, adjectives, and objects learned in the first part. Figure 4–7 illustrates the progress of a child through part one and part two of the word expansion program. As the figure indicates, the child initially showed no learning during the first 12 sessions but then very abruptly exhibited large performance increases, reaching criteria in four sessions. In the second part, the child learned

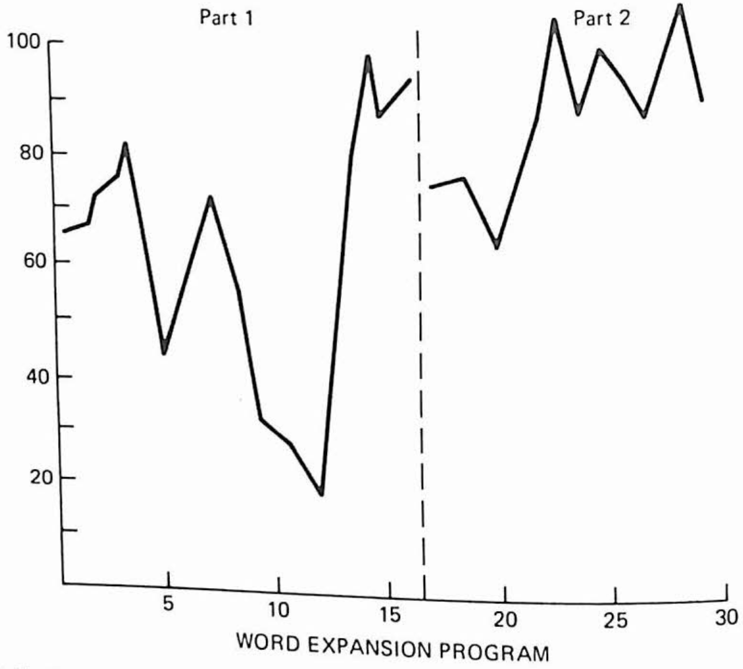


Figure 4-7. The percent of successful trials for the initial 15 action pictures (Part 1) and for the new action pictures (Part 2) 15-Trial Sessions.

Nouns	*Verbs*	*Adjectives*	*Objects*
boy	jumping	dirty	hands
girl	riding	tall	bike
dog	washing	big	fence
man	brushing	little	hair
woman		blue	dog
		green	dishes
		red	

the new pictures much more quickly, indicating that the child was able to generalize the use of the words used in part one to new pictures.

Additional language programs include:

I. *Prelanguage Programs*
  A. Task looking
  B. Gross motor imitation
  C. Touch response
  D. Point response
  E. Matching
  F. Speech exercises

II. *Receptive Language Programs*
  A. Shaping one-part commands
  B. Shaping two-part commands
  C. Shaping three-part commands

III. *Expressive Language Programs*
  A. Noun labelling
  B. Identification of action (verbs)
  C. Adjective-noun
  D. Verb-object
  E. Noun-verb-object
  F. Noun-verb-adjective-object
  G. Noun-verb-preposition-adjective-object
  H. Description of objects
  I. Spatial relationships
  J. Yes - No response (nonverbal and verbal)
  K. Sound production
  L. Sound sequencing
  M. Decreasing echolalic speech
  N. Various signing programs for nonverbal children

IV. *Morphology Programs*
  A. Pluralization
  B. Past tense

V. *Concept Programs*
  A. Same - different
  B. Classification

It should again be emphasized that all children who enter the project have language and communication difficulty. All staff on the project are trained in signing technique so that if the child can imitate but not do well at sound production, he would be taught the functional ability to communicate through signing. This has often been found to be a facilitator of sound production and speech; the process of being able to communicate becomes reinforcing and meaningful for the child.

Occupational Therapy Programming

The goal of the occupational therapy treatment program is to develop behaviors in the general areas of self-help skills, perceptual-motor skills, and independent and cooperative play skills. In general, these complex behaviors are shaped by initially teaching simpler, prerequisite behaviors. When the child learns basic skills, progressively more complex behaviors are taught until he attains the desired level of performance. In all steps of the treatment programs, verbal and edible reinforcement are used for appropriate behavior. If the child is unsuccessful, the therapist models the appropriate behavior and if necessary, through the use of prompts, helps the child perform the behavior and then verbally reinforces the child for his efforts.

During the first week following admission to the project, each child is evaluated in the areas of gross and fine motor skills, perceptual skills, self-help skills, and social development. Since the children vary widely in their abilities in these areas, treatment programs must necessarily be designed for each child to meet his specific needs.

Self-help skills are taught in order that the child can become more independent and therefore easier to care for in the community. Self-help skills include dressing and undressing, bathing, tooth brushing, and toilet training, as well as meal manners including sitting quietly, eating neatly, using a spoon and fork, and drinking from a cup.

Some of the above skills require fine motor control and perceptual skills. To improve finger dexterity and eye-hand coordination, treatment programs involving reach, grasp, and place activities, bilateral activities, crayon and pencil exercises, and fine motor dressing exercises are implemented. In addition, the Fairbanks-Robinson program for perceptual motor development and Frostig programs are used to develop perceptual motor skills.

To develop more appropriate social behaviors, children are taught how to play with toys by themselves and later in small groups. Through the treatment techniques of modeling and coaching, the child initially learns how to play appropriately with a variety of toys. The second step involves parallel play where the children learn to play alongside one another. In the final step, cooperative play, the children learn to play with one another.

The first example of an occupational therapy program is an undressing program. The child for which this program was designed was dependent in all areas of dressing and undressing. The goal of the program was to teach the child to remove his sock independently.

The program was broken down into five steps, and a reverse chaining method was used. Each session consisted of a demonstration followed by ten trials. Successful trials were reinforced with edibles and verbal praise, and unsuccessful trials were completed by using prompts. Trials and successes were counted, and four consecutive sessions of 80% or better were used as the criteria for movement from one step to another. Figure 4-8 illustrates the child's progress through the treatment program. With this particular child, it appears that when the child acquired the basic skill necessary to complete Step 1 (pulling off sock that is positioned over mid-arch), he progressed through the remainder of the steps very quickly, completing the entire treatment program in 22 sessions.

The second example of an occupational therapy program is a toilet regulation

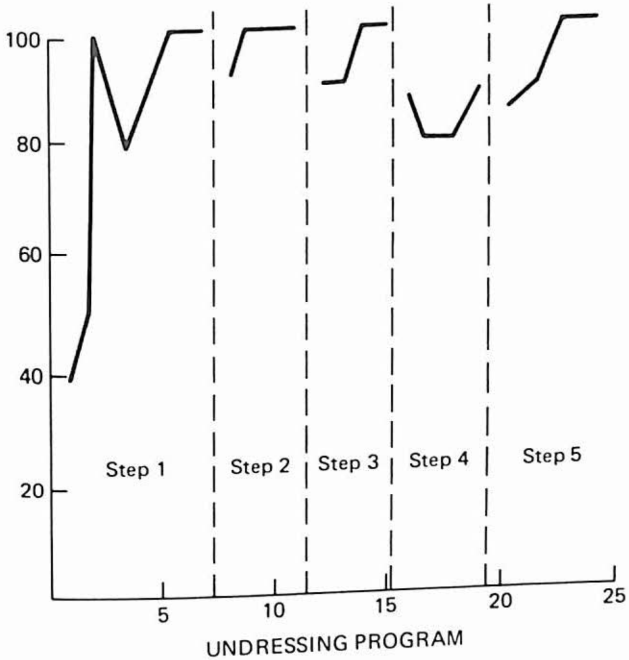


Figure 4-8. The percent of successful dressing trials for each of the five shaping steps. 10-trial sessions.

STEP	*PERFORMANCE CRITERIA*
1	child must pull off oversized sock that is positioned over mid-arch.
2	Child must pull off oversized sock that is positioned just over the heel.
3	Child must pull off oversized sock that is positioned just below the ankle.
4	Child must pull off oversized sock that is completely on.
5	Child must pull off sock that is his own size.

program. The program is designed to develop appropriate pretoileting behaviors, decrease urination accidents, and increase the length of time the child can remain dry between times he is taken to the bathroom.

At scheduled intervals throughout the day, the child is taken to the bathroom. In order to develop appropriate pretoileting behaviors, the child is given small edibles and praise for having dry pants when approached, for walking to the bathroom, for pulling down his pants, and for sitting on the toilet.

The child receives a special edible reinforcer and social praise for urination or defecation in the toilet. Accidents are dealt with by changing the child's pants in a matter-of-fact manner and given as little attention as possible.

Figure 4-9 indicates the progress of a child on the toilet regulation program. On admission to the research project, the child was wearing diapers and would not sit on the toilet. During a 3-day baseline period in which the child was given frequent access to the bathroom but no reinforcement for urination in the toilet, the child averaged five urination accidents per 12-hour day. During the first step of the program, the child was approached at 30-minute intervals and reinforced for appropriate pretoileting and toileting behaviors. The criteria for movement from one step to another was 4 consecutive days with no urination accidents.

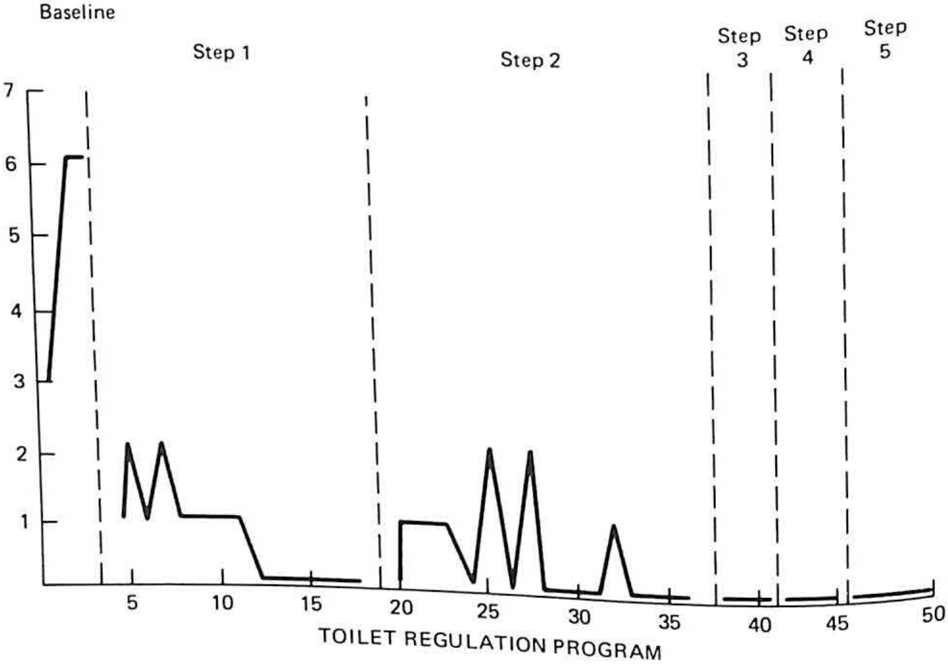


Figure 4-9. The frequency of urination accidents per 12 hour day during baseline and during each of the toilet regulation schedules, days.

STEP	*TOILET REGULATION SCHEDULE*
Baseline	Child has access to bathroom but is given no reinforcement for urination.
1	Child taken to bathroom every 30 minutes
2	Child taken to bathroom every 45 minutes
3	Child taken to bathroom every hour.
4	Child taken to bathroom every 1½ hours.
5	Child taken to bathroom every 2 hours.

As the figure indicates, the child successfully completed the toilet regulation program, being regulated on a 2-hour schedule with no urination accidents, in 50 days.

Additional occupational therapy programs are designed to develop the following skills:

- I. Self-help Skills
  - A. Dressing skills
    - 1. General dressing and undressing skills for pants, pullover shirt, shoes and socks.
    - 2. Fine motor dressing skills involving buttoning and unbuttoning, making and untying a bow, lacing shoes, and fastening skills such as zipping, hooking, and snapping.
    - 3. Independent dressing skills where complex dressing behaviors are linked and supervision is faded out.
  - B. Toileting skills
    - 1. Toilet regulation program in which appropriate pretoileting and toileting behaviors are developed and the length of time the child must remain dry is increased until a 2-hour regulation schedule is reached.
    - 2. Toilet verbalization program where the verbal children are taught to verbally indicate their toileting needs and develop appropriate toileting behaviors.
    - 3. Rapid toilet training (Azrin's method).
  - C. Mealtime skills
    - 1. General meal manner improvement including waiting until all the children are served before eating, holding one hand in the lap, taking small bites, using napkins, etc.
    - 2. Increasing eating skills such as holding utensils correctly and using the fork and knife correctly.
    - 3. Increasing food intake and preferences.
  - D. Hygiene skills
    - 1. Toothbrushing
    - 2. Washing face and hands with washcloth.
- II. Fine Motor Skills
  - A. Grasp, place, release activities
    - 1. Pegs and pegboard activities
    - 2. Building block activities
    - 3. Bilateral activities (bead stringing, pop beads)
  - B. Coloring activities
    - 1. Scribbling and use of crayon
    - 2. Coloring within a stencil

    3. Coloring within a large area (dark line)
    4. Coloring within a small area
    5. Coloring within border with two colors
  C. Cutting activities
    1. Use of scissors (random snipping)
    2. Snipping within designated area
    3. Cutting straight lines
    4. Cutting straight geometric shapes
    5. Cutting rounded shapes
  D. Cut, color, paste activities
  E. Marianne Frostig workbooks and ditto sheets
  F. Fairbanks-Robinson Perceptual Motor Development Kit
III. Play and Social Development Skills
  A. Independent play
  B. Parallel play
  C. Cooperative play

School Programming

All children attend one of three special education classrooms for 4 hours each day. The primary goals of the school programs are to implement the behavior management programs as well as to implement programs designed to develop preacademic behaviors such as eye contact and hands and feet quiet. When these are established, academic programming can begin. The children are separated into the three classrooms on the basis of their verbal and academic abilities.

The school programming of one classroom is designed for nonverbal children. This consists primarily of receptive programs such as color and shape recognition, math concepts such as big-little and number identification, printing readiness skills, functional item recognition and usage, and printed name identification.

The first example of a school program is a treatment program designed to teach color matching to nonverbal children. In the first step of the program, the child is presented with a partitioned box with red, green, orange, purple, yellow, and blue stripes directly above six slots in the box. Initially, the child is given only red pegs and instructed to sort the pegs. Successful color matches are reinforced with small edibles and praise. When the child makes an incorrect match, the teacher rehearses the correct procedure with the child. When all 25 red pegs are color matched, the procedure is repeated with 25 blue pegs. When the child correctly color matches 95% or better of the pegs for three consecutive sessions, a third color is added. In addition, for the first part of each step, pegs of the new

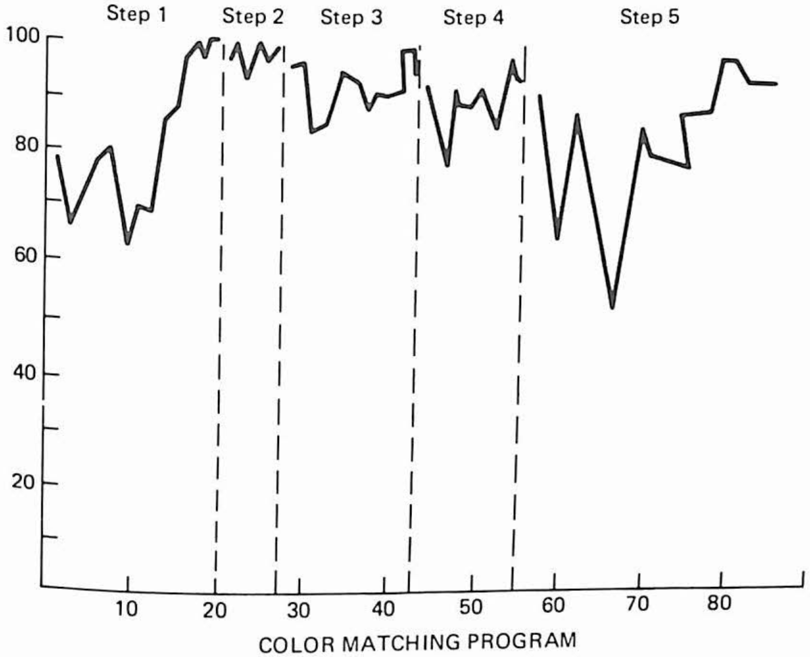


Figure 4–10. The percent of successful color matching during each of the five shaping steps.

STEP	*PERFORMANCE CRITERIA*
1	Child must color match red and blue.
2	Child must color match red, blue and green.
3	Child must color match red, blue, green and yellow.
4	Child must color match red, blue, green, yellow and orange.
5	Child must color match red, blue, green, yellow, orange and purple.

color are fastened next to the appropriate slots to provide extra cues. When the child completes one session of 90% or better, the extra cues are removed. Figure 4–10 illustrates the progress of one child in the color matching program. As the figure indicates, the child showed little learning during the initial ten sessions. At this point, the child began to show improvement in performance and reached criteria during the next ten sessions. The child then learned to match the next four colors relatively quickly.

The intermediate classroom is designed for children with limited verbal and academic abilities. This intermediate classroom focuses on academic skills such as rote counting, reading readiness skills, alphabet recognition, and Rebus reading.

The second example of a school program is a treatment program designed to teach size discrimination. In the first part of this program, the teacher places two objects varying in size in front of the child and asks the child to "touch big." If the child responds incorrectly, the teacher physically prompts the response. The child receives ten trials of "touch big" followed by ten trials of "touch little." The child must respond correctly 85% or better on three consecutive sessions before moving from one step to another. In the second step, the teacher interchanges trials of "touch big" and "touch little." In subsequent steps the child is required to make size discriminations between objects differing in color and size, objects differing in color, shape, and size, pictured objects differing only in size, pictured objects differing in color and size, and pictured objects differing in color, shape, and size. Figure 4-11 shows the progress of a child through the size discrimination program. The figure illustrates that after the child learned to discriminate objects which were identical to one another except in size, he was able to generalize this skill to objects and pictures of objects which differed from each other in color and shape as well as size.

The third classroom contains children with the highest verbal and academic abilities. Children in this classroom are able to use four- and five-word sentences. School programming consists of rote counting, reading skills, phonics, Rebus reading, writing readiness, and learning names and addresses.

Additional school programs are designed specifically for the children in each classroom to develop the following preacademic and academic skills:

Nonverbal Classroom

I. Preacademic Programs
    A. Sitting in chair
    B. Hands and feet quiet
    C. Task looking
II. Academic Programs
    A. Reading readiness programs
        1. Sorting, matching, and identification of colors
        2. Clothing and body parts identification
        3. Printed name identification
        4. Identification of familiar objects and their function
    B. Writing readiness programs
        1. Printing numbers
        2. Drawing an *X* to be used in workbook tasks
    C. Math readiness programs
        1. Shape discrimination
        2. Number recognition
        3. Size discrimination

III. General Classroom Activities
A. Playing appropriately with classroom materials

Intermediate Classroom

I. Preacademic Programs
A. Sitting in chair
B. Hands and feet quiet

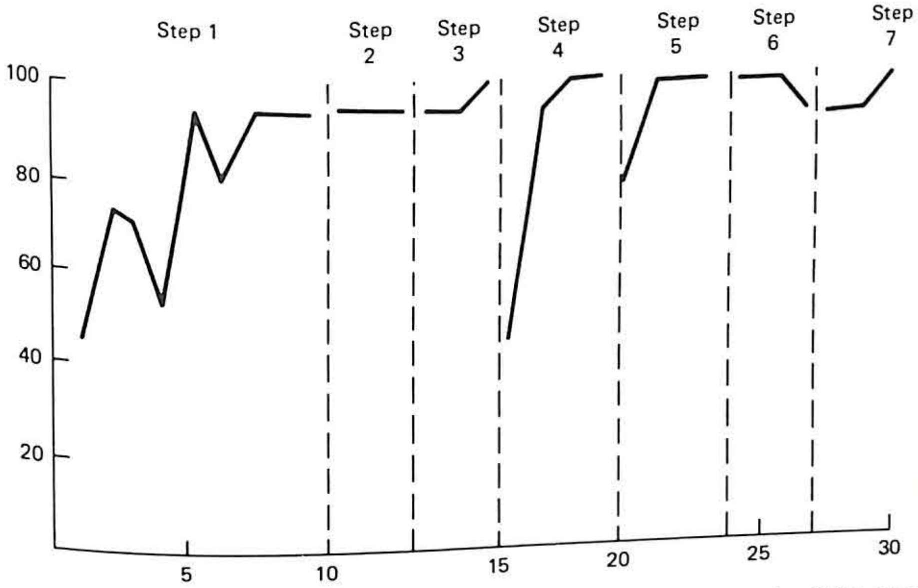


Figure 4-11. The percent of successful size discrimination trials for each of the seven shaping steps. 20 Trail Sessions.

Step	*Description of Step*
1	Objects differing only in size. "Touch Big" trials followed by "Touch Little" trials.
2	Objects differing only in size. "Touch Big" trials interchanged with "Touch Little" trials.
3	Objects differing in color and size. "Touch Big" trials interchanged with "Touch Little" trials.
4	Objects differing in shape, color and size. "Touch Big" trials interchanged with "Touch Little" trials.
5	Pictured objects differing only in size. "Touch Big" trials interchanged with "Touch Little" trials.
6	Pictured objects differing in color and size. "Touch Big" trials interchanged with "Touch Little" trials.
7	Pictured objects differing in shape, color and size. "Touch Big" trials interchanged with "Touch Little" trials.

    C. Task looking
    D. Raising hand to gain teacher's attention
    E. Pointing response
II. Academic Programs
    A. Reading readiness programs
        1. Color discrimination
        2. Alphabet recognition
        3. Rebus reading
    B. Writing readiness programs
        1. Writing numbers
        2. Drawing an *X* to be used in workbook tasks
    C. Math readiness programs
        1. Rote counting
        2. Number recognition
        3. Size and shape discrimination
        4. Concept of same-different
III. General Classroom Activities
    A. Family concept identification
    B. Animal identification
    C. Names and addresses
IV. Special Programs

Token programs are used to increase appropriate classroom behaviors using reinforcers such as free time or listening to music. Shaping programs are designed in which the child must display appropriate school behaviors for progressively longer periods of time to earn the reinforcers.

Verbal Classroom

I. Preacademic Programs
    A. Sitting in chair
    B. Hands and feet quiet
    C. Task looking
    D. Hand raising
    E. Pointing response
II. Academic Programs
    A. Reading readiness programs
        1. Color discrimination
        2. Alphabet recognition
        3. Phonics program
        4. Rebus reading
        5. SRA Reading Program
    B. Writing readiness program
        1. Writing numbers

      2. Printing name
      3. Palmer Writing Readiness Series Workbook
      4. Handwriting with Write and See Workbook
   C. Math readiness programs
      1. Shape discrimination
      2. Rote counting
      3. Number recognition
      4. Houghton-Mifflin Math Workbooks
         a. One-to-one correspondence
         b. Addition and substraction
III. General Classroom Activities
   A. Morning greetings
      1. Identification of day, week, month
      2. Questions concerning age, weather, clothes, etc.
   B. Names and addresses
   C. Clothing identification
   D. Playing independently with classroom materials
IV. Special Programs
   Again, token programs are used to increase appropriate classroom behaviors using recess as a reinforcer. Shaping programs are designed in which the child must display appropriate school behaviors for progressively longer periods of time to earn the reinforcer.

Transition to the Community

A major goal of the project is to insure that the behavioral changes in the child developed at the Institute are maintained when the child is returned to the community. Research indicates that in order to maintain the behavioral improvements, the child's environment upon discharge must approximate that of the Institute. Those behaviors which are reinforced and developed at the Institute must also be reinforced in the home environment, and likewise, those behaviors which have been treated and reduced at the Institute should be treated in the home.

Upon discharge the child spends a great deal of his day in either a special education classroom or at home with his family. Consequently, it is necessary that both the classroom teacher and the family members be trained to implement the specific treatment programs that were found effective in changing the child's behavior while at the Institute. This is accomplished by a teacher training program and a parent training program, both of which are conducted by the Institute staff. These programs will be only briefly discussed in this chapter since both areas of training are discussed in detail in the following chapters.

Teacher Training. As mentioned above, the primary goal of the teacher training program is to insure that the behavioral changes established at the Institute are maintained when the child is returned to the community. A secondary goal of the teacher training program is to facilitate the maintenance of preacademic and academic skills that the child acquired in the Institute's classroom.

Teacher training begins prior to discharge when the child's prospective community teacher is invited to observe the child in the school program at the Institute. The purpose of the observation is to provide the community teacher with an opportunity to view the child's behavioral programs and academic programs in operation. The community teacher becomes familiar with the type of expectations, limits, and consequences that are involved in the child's programs. In addition, the child's particular characteristics, routines, likes, and dislikes can be observed and discussed so that the community teacher can become familiar with the type of child that will be entering the community classroom. All of this helps to facilitate consistency between the Institute classroom and the community classroom.

In addition to observing the child in the Institute classroom, the community teacher also becomes familiar with and is trained in all of the behavioral, preacademic, and academic programming of the child. The teacher receives written copies of all of the treatment programs. Implementation of the programs is discussed in detail and trained through role play. In addition the teacher is given the opportunity to apply them with the child at the Institute.

It is also important for the community teacher to become familiar with the previous programs the child has completed as well as the specific program revisions that were necessary for his program. This allows the community teacher to become familiar with the behavioral characteristics of the child prior to treatment, how the child responded to various treatment techniques, and the amount of growth and progress the child has accomplished with the specific programming. With this knowledge, the teacher is able to reinstitute previously effective programs when necessary.

Immediately following discharge, the child's Institute teacher and the child-care worker assigned to the child continue the training of the teacher in the community school. Regular visits, at first two or three per week, are set up, at which time the Institute staff work with the community teacher and child at the community school. The purpose of these visits is to provide a consistent person in the school setting for the child. The community teacher has assistance in overcoming any specific problems that arise in the implementation of the Institute's program in the new setting. The child-care worker continues to work in the classroom with the community teacher on a weekly basis, then on a monthly basis, and finally, as needed.

As the child is transitioned into the community school, communication between the parents and the new teacher is facilitated by the Institute staff. This communication is necessary in order to continue to provide the child with a consistent environment. Also, it provides for a necessary transfer of programming responsibility from the Institute to the school.

Parent Training. As with the teacher training program, the goal of the parent training program is to insure that the behavioral changes in the child developed at the Institute are maintained when the child is returned to the community.

In addition, because the child stays at the Institute during the week but goes to his home on weekends and holidays, it is important that his environments are as similar and as consistent as possible. This can only be accomplished through very specific and detailed communication between the Institute staff and family members.

Parent training is an intensive training effort designed primarily to train parents on how to deal with their child's behaviors. It is a behavioral approach. It does not focus on the "whys" or the theories of behavior but rather on how to deal effectively with the child's behaviors. Through parent training, family members learn to identify and count specific behaviors, to implement specific behavioral techniques to modify these behaviors, and to assess the effectiveness of their treatment programs.

Parent training begins at the time of the child's admission to the program. The initial phase of parent training is held at the Institute. At 2-week intervals, parents attend eight to ten 2-hour highly structured training sessions which are conducted by the child's child-care worker and either a psychologist or social worker.

Each specific treatment program is taught by initially explaining the program, modeling the approach for the parents, having the parents role-play the treatment, and finally having the parents implement the program with their child. The parents then take their child home for a weekend visit and implement the program at home. Data are collected and returned to the Institute when the child is returned following the visit.

Specific methods of teaching include: (1) the use of role-playing the correct method of implementing the program as well as typical mistakes that may occur; (2) role playing the unique characteristics of the child so that the parents have some idea as to how their child will react; (3) giving parents direct feedback on what they are doing correctly as well as what they should do differently; and (4) encouraging the parents to give each other feedback. The use of a one-way observation room allows the staff as well as the parents an opportunity to observe programs in operation.

The parents are also taught to count specific behaviors reliably by using prescored videotapes and by counting with a staff member and comparing counts.

Videotaping is also used as a direct method of giving the parents feedback on their interactions with their child. A portion of several training sessions are videotaped, after which the staff and parents view the tape and discuss the parent-child interactions.

After the parents have learned to correctly implement each of the child's programs at the Institute, the second phase of parent training begins. The phase involves eight to ten 2-hour training sessions conducted in their home. The purpose of this phase of parent training is to continue training the parents in the use of the treatment methods as well as helping them to overcome specific problems which develop in implementing the treatment programs in their home.

Once again the methods of role playing, modeling, discussion, and coaching are used in refining the parents' application of the programs as well as in teaching them new shaping steps or any new programs. In addition, a portion of several training sessions are devoted to objectively measuring the parents' implementation of the programs. The parents implement all programs for a specified period of time, during which they count each time-out and reinforcement they give the child. Meanwhile, the staff members count all time-outs that should have been given, as well as opportunities to reinforce the child that were missed. These counts are later compared and discussed so that the parents get objective feedback as to how they are implementing the programs.

During in-home training, babysitters, grandparents, or family friends who often spend time with the child are invited to participate in the training process. Such people are also invited to attend the on-unit training sessions, but usually find it more convenient to attend the training sessions in their home community. The training of babysitters, grandparents, and family friends helps to relieve some of the pressures placed upon the parents after the child is discharged and also provides more consistency in the treatment of the child.

During in-home training, parents are also encouraged to identify troublesome behaviors which the child has not been treated for as well as any additional adaptive behaviors that they would like to teach their child. The parents are encouraged to write treatment programs for these behaviors, implement the programs, and take data to determine if they are effective.

At the time of the child's discharge from the Institute, the parents have completed intensive structured training programs conducted both at the Institute as well as in their home. This provides the child with consistency during his stay at the Institute as well as facilitates maintenance of his behaviors upon discharge.

Community Consultation and Training

The program staff is actively and intensively involved in consultation and training of community professionals and parents throughout the state. In addition to the parent-training and training of the school personnel, the staff is involved in training teachers, speech pathologists, occupational therapists, home trainers, school psychologists, daycare directors, group home staff, and many other community professionals. Consultation requests may be centered around one specific child who is exhibiting some undesirable behaviors or may involve a more global aspect such as how to set up a behavior modification unit in an institution.

The goal of community consultation and training is to disseminate the specialized treatment programs developed at the Institute to community based treatment centers, such as group homes or special education classrooms. In this manner a special education teacher or community agency maintains primary responsibility and direct therapeutic contact for a child who is exhibiting some problems but does not require intensive residential treatment. Programs which have been found successful at the Institute can confidently be applied to children in community settings. In addition, basic staff training in a daycare setting or group home can enable that staff person to teach a child many new skills, decrease inappropriate behaviors, and consequently develop a more positive, pro-social environment for the child.

Project staff are involved in community consultation and training in the following general areas.

Behavioral Management of Psychotic and Neurologically Impaired Children. The specific programs that have been found effective in increasing compliance, increasing attending behaviors, and decreasing aggressions, temper tantrums, and bizarre mannerisms with psychotic children are extremely useful to community people who need such programming for a child. These programs have been taught to various community people, including an entire program staff, by the project staff. Use of videotape, role playing, and modeling are involved in teaching these programs.

Skill Acquisition. The project has a variety of treatment programs in the areas of self-help skill acquisition as well as preschool requisites for children who are neurologically impaired, psychotic, or exhibiting behavioral problems. Specific programs on dressing skills, meal manners, toileting behaviors, socializing, and preschool skills (holding a pencil, raising your hand, and similar programs) are available to be shared and taught to community professionals.

Program Assessment. Methods of data collection, recording data, and graphing and analysis of the data are explained to community people who wish to develop their own system of program assessment. A very precise method of recording data daily has been developed and found very useful in a variety of settings.

Parent Training. Two parent training models have been developed within the project and researched as to their effectiveness. The first involves group parent training in which the staff teach the basic principles of behavior modification as well as their application. The second is an individual family approach in which the family members learn the specific behavioral management programs for their child. This approach includes the use of role play, modeling, data collection in the home, writing behavioral programs, the use of videotape feedback, and intensive working with their child with staff members coaching the parents. In addition, this method includes parent training in the more structured setting of the Institute, as well as in the more natural home environment in order to facilitate generalization of the training. Numerous handouts that have been found effective in training parents are available and useful to staff interested in setting up their own parent training program.

Evaluation of Parent Training. The method of evaluating the effectiveness of a parent training approach is useful to community agencies so that they can assess their own training. This evaluation includes an objective measurement of the parent-child interactions which are hypothesized to relate to effective parent training prior to training and following training. This data is then used to assess change in the parent's responses to the child as a function of parent training as well as indicating areas in which additional training is needed.

Staff Training. A variety of methods are used in the process of training community program staff to implement behavioral management programs. Methods of training include the use of modeling, role playing, videotaping, direct feedback from staff to staff, ongoing inservice, weekly reliability testings, as well as various methods designed to motivate staff to learn. These approaches to staff training can be valuable to group homes, community agencies, as well as many programs that are constantly faced with new personnel.

Program Overview. A videotape as well as a 16-mm filmed overview of the project is available to community agencies. This presentation includes a more global explanation of the project, the goals, the areas of behavioral management, as well as the team approach in treatment of psychotic, autistic, and neurologically impaired children.

Training of Students

Students from a variety of disciplines spend varying lengths of time working on the Project for Psychotic and Neurologically Impaired Children as part of their respective professional training programs. Student trainees most frequently represented are occupational therapy, social work, psychology, special education, as well as predoctoral interns in clinical psychology. The range of ongoing experiences that are available in the project offers an exceptional opportunity for the trainees to obtain the practical experience not otherwise obtainable through regular classroom instruction. Students typically become actively involved in such activities as child education and management programs, family interventions, community consultation and education, research, and staff development programs.

The first phase in the training program involves thoroughly acquainting each trainee with the rudimentary aspects of the unit programs, including behavioral definitions, data collection procedures, and specialized treatment programs. Students team with individual staff members during their daily activities with the children. In this way, staff members model the skills necessary for the trainee to function successfully on the unit, and provide valuable feedback to the trainee on their skill proficiency. As the student's overall understanding and proficiency in carrying out the basic procedures used in the project improve, more specialized training in the student's discipline can begin.

A principal objective of the training experience is to provide each student with the flexibility to become involved in programs which will best meet his or her own personal and professional needs. As such, during this second phase the trainees typically work more intensively within their own professional roles. For example, the occupational therapy (OT) student begins to share the responsibilities of working directly with individual children on OT programs, and to develop and implement new programs. The experiences of the social work student are frequently varied including assisting in developing behavioral management programs, participation in parent training, arranging and coordinating admissions and discharges, and consultation with community agencies. The psychology intern becomes actively involved at all levels of responsibility depending upon individual expertise and interests. The intern consults with staff members on existing research programs, assists in evaluating the progress of individual children in the program, participates in parent training and inservice staff training programs, implements innovative research ideas, and consults with local schools and regional mental health facilities in developing treatment programs similar to the Mendota project.

By enabling students to actively participate in the project, the benefits to the student are often substantial. Students typically leave the project with a thorough understanding of how to treat psychotic and neurologically disturbed children within a family-community context. Furthermore, by being given direct responsibilities in the project, they can develop a greater appreciation for their future roles as professionals. Students making a significant time commitment to the project, such as student teachers, leave the project and implement similar techniques in their new jobs in the community.

The project also profits from the presence of the trainees. Frequently, students become so involved in ongoing programs that the staff look upon and relate to the trainees more as fellow staff members than as students. Trainees provide new input into existing programs and offer suggestions for the continued development of the project. In this way the project staff may take advantage of the unique contributions of each student.

Data Collection

Data collection at the Institute is used primarily to evaluate treatment techniques. The criteria for good data include: (1) the data must be clearly defined to ensure that all staff are treating and counting the same responses; (2) the data must provide a valid index of the behavior which the treatment program is designed to alter; and (3) the data must be sampled over a sufficient period of time to indicate any trend. Used in this manner, data can be used to indicate specific trends in the child's behavior and therefore allow for the evaluation of treatment programs.

Each child has a large ring-binder data book which contains a management order, or treatment plan, data sheets, and a graph indicating the progress of the child on each of his specific treatment programs. No programs are implemented without a complete treatment plan in the child's chart.

Since the primary data used to evaluate the treatment programs are gathered through behavioral observation, it is necessary to demonstrate high interobserver reliability among the staff members. Each week, through a one-way mirror, the research analyst and staff observe and record the behaviors of a child while he is attending school. Five-minute time samples are gathered, and measures of interobserver reliability are obtained. At this time, discrepancies in counting can be discussed and resolved. Accurate counting on compliance, aggressions, temper tantrums, and bizarre mannerisms is stressed. Because each of these involves a large number of specific definitions and the children typically exhibit these behaviors at a rapid rate, weekly practice sessions are necessary to maintain an interobserver reliability rate of 85% or better. As a further means of staff training, the research analyst regularly conducts inservice workshops using videotape equipment to provide immediate and accurate feedback. In addition, prescored videotapes are also employed to gather validity measurements of behavioral observation.

SUMMARY

It has been the attempt of the authors to describe the Project for Psychotic and Neurologically Impaired Children in a general program review manner. Much of what has been described will be elaborated on to an extensive degree in the following chapters, especially in those areas relevant to a community system model.

In a general summary, this project serves 15 3- to 11-year-old psychotic and neurologically impaired children. These children are characterized by noncompliance, bizarre mannerisms, hyperactivity, temper tantrums, aggressiveness, withdrawal, and little or no language. The inpatient treatment program averages between 6 and 9 months. Treatment is directed at: (1) identifying specifically each child's behavioral shortcomings and strengths; (2) designing, implementing, and evaluating programs to reduce abnormal behavior and to increase more appropriate behaviors; (3) designing, implementing, and evaluating programs to train parents and teachers to generalize and maintain new pro-social behaviors. The ultimate goal of the program is to make the child acceptable to his parents and his community by making him more manageable, self sufficient, and socially active. Immediate goals include the development of language, compliance, visual-motor skills, gross motor skills, specific self-help skills, eye contact, and independent play. The multidisciplinary approach involves two teams all working within a behavioral-educational framework. Since most children return home following treatment and likewise go on home visits on a weekly or bi-weekly basis, a smooth transition from the Institute to the home is facilitated by intensive work with parents. Techniques of behavior observation and therapeutic intervention developed at the Institute are taught to parents so that when the child is home they can carry on with procedures to maintain consistency of treatment. In addition to working with the family following discharge, the staff also work with the child's teachers in the classroom, again with the objective of maintaining consistency of treatment. Follow-up is maintained on a child up to 2 years after discharge, by staff contacting the home and school at regular intervals in order to: (1) assist the family and school in new programs; (2) evaluate the effects of the treatment program; (3) assess maintenance and generalization of those programs to the community; (4) evaluate the effectiveness of the parent and school training programs. In addition to the inpatient treatment and research function, as much as 25% of unit staff time is involved in consultation to schools and agencies throughout the state, where a child can benefit from Institute developed programs but does not need intensive residential treatment. In summary, results suggest that psychotic children can be quickly remediated through the application of the described program and that their maintenance after discharge seems to be a direct function of intensive parent and community teacher training. Children discharged from the project throughout the large geographic area of Wisconsin are being successfully maintained in the community.

5

Issues in Family Intervention

To begin a chapter on family systems intervention, it seems only fair to express a strong bias on the part of the authors. After 7 years of extensive work with parents of psychotic and neurologically impaired children, experience has shown us that families, like children, all function in a unique dynamics system and that each family must be worked with in a individualized manner that maintains a sensitivity to those dynamics. While one can assuredly say that the earlier "cold mother" interpretation of autism has been rejected by contemporary mental health practitioners, that particular belief and orientation did activate a large group of parents to form the National Society for Autistic Children where the philosophy and orientation of the organization emphasized strongly the parent's commitment to demand services for their children, not philosophies about parental rejection. One effort of the PPNIC has been to assist in that purpose and to use the knowledge and benefits that many parents experienced with children to formulate intervention strategies to benefit not only their children, but also future children born with such severe communication disorders. Therefore, the project began its work with parents with a strong bias that no further guilt need be instilled upon a family system but rather that the project would interact with each individual family system as it presented itself to the staff, there would be a primary goal of reassurance that such children can be managed in a home living environment and that communities can also learn to support families in their efforts to maintain their children at home. Thus, while the PPNIC focuses heavily on a parent-child interaction model, it does so not with a perspective of blame but rather an assumption that certain increased positive interaction patterns will facilitate the development of a continued positive parent-child relationship. While some families may in fact appear dysfunctional, one must assess closely the reality of that perceived dysfunction as a normal adaptation to relating and dealing with a child with severe communication disorders and expression of many socially unacceptable and often bizarre behaviors.

Given this introductory bias, one must keep in mind that the procedure to be described may in fact appear quite rigid and concrete in its application, when in fact it is the format and not the individual procedure and style with any given family that is being described. The very nature of utilizing a parent-child interaction system speaks to the project's effort to meet the individual needs of each child and family.

In discussing family intervention and parent training, the authors have chosen to describe the process and dynamics that are clinically involved. This is followed by a more rigorous experimental study which describes the technicality of the research design in evaluating the program's general effectiveness. It should also be noted that while the procedure described reflects work with families of inpatients, the process can and has been applied to outpatient settings as well.

PARENT TRAINING

The parent training component of the Project for Psychotic and Neurologically Impaired Children is an integrated aspect of the entire treatment process. Arrangements to facilitate the entire parent training process begin prior to admission during the prescreening and preadmission meetings. Information relevant to the training needs of the family is gathered informally prior to admission. The roles that grandparents, older brothers and sisters, aunts, uncles, and other significant people play in the care of the identified child are pursued. Their need to be involved in the training process is discussed with the parents. Arrangements for child care in cases of emergency and in situations where the parents just want a few hours away from their child are discussed prior to admission. This discussion assists the staff members in understanding who is with the child during the parents' absences and begins to get the parents to think about a consistent environment for their child.

Prior to admitting their child to the project, the parents sign a contractual agreement with the project staff. This agreement clearly delineates what will be expected of the parents as well as what they can expect of the project staff. The specific times the parent training sessions will be held, the need for both parents attending each session, the fact that some of the training sessions will be held in the family's home, the expectation that the parents will take data regarding their child's behavior and their own behavior every day they have their child at home, contingencies should either party not follow through on their commitments, and many other specific expectations are included in this agreement. One of the purposes of the agreement is to ensure that the parents have a clear understanding of the expectations the staff will be having of them during the next few months. In addition, the agreement adds a formality to the parents' involvement and responsibility in the treatment process of their child. It is an early and continual reminder of PPNIC's philosophy that the parents are the individuals responsible for their child and that the PPNIC staff are only facilitators of the process of growth in their child and their relationship with the child.

Prior to admission, a specific parent training time and 3-month schedule of sessions is established. Parent training sessions are always held prior to a home visit rather than at the completion of a visit so that the parents can learn specifically what they should be doing with their child during the visit. In addition, parent training sessions are held at a time most convenient for the family members. Work schedules, school hours, bedtimes, and normal daily activities are all considered in establishing a training time for each family. Once the specific parent training time has been selected, the 3-month schedule of sessions is established. This schedule includes a list of the home visits, the parent training sessions, and the location of the training sessions. The process of writing such a schedule and discussing it with the parents usually reduces last minute scheduling changes caused by staff vacations, family trips, family gatherings, business trips, and holiday festivities. It also, again, adds a formality to the parent involvement and responsibilities.

Two staff members are selected to be the parent trainers for each family. This team consists of either a psychologist or social worker paired with a nursing staff member (*i.e.*, registered nurse, licensed practical nurse, or psychiatric aide) as co-therapist. The psychologist or social worker has overall responsibility for scheduling, planning, and implementing the entire parent training program with the family. The nursing staff member assists with role plays, modeling, demonstrations, and participates actively in the actual training process. In order to provide the family with consistent therapists that they can get to know well, share their concerns with, and learn to trust over a period of time, the therapists chosen to work with a specific family remain as the parent trainers during the child's entire course of treatment.

The training sessions begin the first week of the child's treatment and continue throughout the child's entire stay with the project. Generally, the parent training sessions are held every other week, giving the parents either one weekend or two weekends (depending on how frequently the parents are able to take their child home) to practice implementing the treatment programs they have learned. Depending on the child's progress and the parents' ability to establish and change the child's behavior at home, training sessions may be held weekly for a period of time. Often training sessions can be held every 3 weeks or even monthly during the last few months of the child's treatment. Most families receive approximately 16 to 18 2-hour training sessions during their affiliation with the project.

Throughout the entire training process, the progress of the parents and the treatment programming for the child are coordinated. The child does not begin any behavior treatment programming until the parents are ready to learn to implement the program. Likewise, when the child moves from one treatment step to a more advanced step on a behavior management treatment program, it is necessary for the parents to be aware of this change prior to their next visit with the child. This continual coordination results in consistent environments with and expectations for the child as he spends weekdays at the project and weekends at home with his family.

The main goal of the parent training program is to teach the family members to consistently and correctly implement all the behavior management programs utilized at the Institute and felt necessary to maintain the child in his home community. However, there are many other programs besides the behavior management programs that need to be taught in the parent training program. All of the programs that teach self-help skills and activities of daily living need to be coordinated with the family's expectations. If the child is expected to put his shirt on independently at the Institute, it is important that the parents also have the same expectation. Therefore, such programs are taught in the parent training sessions, and the parents are also made aware of each change in a teaching step throughout the child's entire course of treatment. Academic, language expansion, fine motor skill programs, and similar in-session programs are also often taught during the parent training sessions. Although it is not mandatory to teach the parents such programming, positive in-session programs often give the parents an opportunity to teach the child a skill, establish a positive learning experience, and illustrate to the parents some of the skills their child does have that they may not have been aware of previously.

The importance of the parents' ability to contribute to the treatment planning should not be underestimated. Often the child will demonstrate one skill at home but refuse to engage in that behavior at the Institute, resulting in different expectations. Because of the differences in the two environments, a child may demonstrate many disruptive behaviors in the home setting (*i.e.*, run out of the house, provoke animals, and dismantle a stereo) that he has no opportunity to do at the Institute. It is important to discuss these problems and formulate treatment programs that can be implemented in the home setting to deal with these behaviors. It is less important to deal with disruptive behaviors that only occur at the Institute and cannot occur in the home setting because of the differences in the environments. Priorities in treatment planning must always be towards community living.

PARENT TRAINING PROCEDURE

A general training procedure, or format, has been established for the parent training sessions. A structured format is used for the training sessions held at the Institute; a less structured format is used for the sessions held in the family's home or community setting.

The procedure for the training sessions held at the Institute is as follows:

Preparation For Training Session

Prior to each training session, the nursing staff therapist has the child's data book which describes the child's treatment program, updated to ensure that all data are entered and graphed. Thus, the family can easily view their child's progress during the week. The therapist also meets with the teacher and language therapist in order to review the child's academic and language programming progress. The nursing staff therapist and psychologist or social worker meet and decide the goals and specific format for the upcoming training session after general goals have been established with each family. This outline includes who is going to do what, who works with each parent, and how much time is allocated for each aspect of the training session (see sample outline). Both therapists thoroughly review the specific programs they will be teaching. They anticipate any questions they may be asked and question one another regarding the details of the program. Extra copies of the programs to be taught, special handouts, data sheets, and home-visit data recording sheets are prepared prior to the training sessions. For the first training session, a parent training folder is assembled for each family. This provides the family with a special place to keep their programs, data sheets, and handouts. On the day of the training session, the actual room, or rooms, to be used are straightened up by the parent trainers so that no time will be wasted on such housekeeping tasks during the parent training session.

Sample Outline

First parent training session—at Institute
(5 min.) I. Explain schedule for parent training session Judy
(10 min.) II. Review progress using Lisa's data book Patti
(20 min.) III. Train compliance program
  1. Go over program Judy
    a. Request vs. command
    b. Academic vs. nonacademic commands
    c. Language commands
    d. Five seconds to begin to comply
    e. Compliance approximations
    f. Reinforcement—kinds
    g. Counting compliance program
  2. Role play successes Patti = Lisa
    a. Getting Lisa's attention Judy = staff
    b. Waiting 5 seconds to comply
    c. Reinforcing specific behavior

	3. Parents role play successes with staff	Patti = Lisa
(5 min.)	IV. Train noncompliance (failures)	Patti
(20 min.)	V. Train quiet-room program	Judy
	1. Go over program—how to give QR	
	a. Wording before QR	
	b. Wording after QR	
	c. Temper tantrums in QR	
	d. Refusal to come out of QR	
	e. How to count QR's	
	2. Role play quiet-room program	Patti = Lisa
	a. Temper tantrums in QR	Judy = staff
	b. Refusal to come out of QR	
	3. Role play with parents	Patti - Lisa
	a. Regular QR	Judy = coach
	b. Temper tantrums in QR	
	c. Refusal to come out of QR	
(25 min.)	VI. Mother work with Lisa with Judy Father observe and count with Patti	
(25 min.)	VII. Father work with Lisa with Patti Mother observe and count with Judy	
(10 min.)	VIII. Discussion with family	
	1. General feedback	Judy
	2. Explain training worksheet	Judy
	3. Explain home visit data sheet	Patti

General Schedule For Training

During the first hour of the training session, the parents are greeted and escorted to the training room. The specific items to be trained and the schedule for the session are reviewed with the parents so that they know what to anticipate throughout the session. The child's progress at home and at the Institute is briefly discussed with the family. This includes the child's behavior management programs, language progress, academic progress, and other specific skill acquisition programs. Following this review of the child's treatment programs, the training aspect of the session begins. Generally, only one new treatment program is taught during a training session. That program is also reviewed at the beginning of the next training session before another new treatment program would be introduced. The method for training a new treatment program consists of the following:

- Each parent has a copy of the treatment program to follow as one of the trainers reads and paraphrases the program.
- Each section of the program is read, and then paraphrased.

- The entire program is summarized by reiterating the main points (often the main points will be listed on the blackboard at this time).
- The two therapists role play the treatment program. As they are role playing, they are pointing out various aspects of the program. One therapist is attempting to engage in behaviors similar to those of the parents' child. The role players also demonstrate typical mistakes a staff or parent may make in trying to conduct the program.
- One of the parents implements the program with a staff member playing the role of the child. The second therapist is reinforcing the parent and pointing out any mistakes he/she is making.
- The second parent implements the program with the staff member playing the child's role. He/she is given reinforcement and redirection appropriate to his implementation of the program.
- One of the parents implements the program with their own child. A staff member is nearby to reinforce, assist, redirect, and remind the parent of details of the program. All reinforcement and criticism is specific and concise.
- Meanwhile, the second parent and staff member are observing the interactions through a one-way mirror. This parent is counting various kinds of interactions (*i.e.*, commands, reinforcements, and time-out) while the therapist is assisting him. In later sessions, the parent and staff member will not discuss their counts until the entire observation is completed, at which time their counts will be compared and differences discussed.
- The parents change roles, with the opposite parent working with the child and the other parent observing and counting.

The final minutes of each training session include a general discussion with the parents. The main points of the training session are reviewed, instructions and pointers for the weekend are given, and the parents are given feedback on their implementation of all the programs they have been trained on. The parents also have an opportunity to discuss other concerns they might have or additional questions regarding their child.

Variations in Training Schedule

Throughout the parent training program, parts of specific sessions are set aside to be used for training assessment of for unique problems the parents may be having. Approximately three or four times, throughout training, a 15-minute time sample of the parents' interaction with their child is taken for assessment purposes. Both of the parents are instructed to work with their child and implement all of the programs they have been trained on. Both of the parent trainers observe through the one-way mirror and code the parent-child interactions. The results of the observation are shared with the parents and used by the parent trainers in establishing goals for future training sessions.

Depending on the degree of problem the child is causing with community outings, at least one session and possibly four or five training sessions are held in community restaurants, shopping centers, or parks. If the child continues to cause problems for his parents in these settings, more sessions will be devoted to assisting the parents in implementing the programs in the community. Also the parents are given specific assignments of taking their child to community affairs during the weekend and reporting back to the staff the child's behavior during the activity.

Videotaping parent-child interactions during the training sessions and then reviewing and discussing the videotape has been an invaluable asset to many families and parent trainers. Parents are given the opportunity to sit back and observe their own interactions with their child, replay specific parts of the videotape, and discuss what they should have done differently. Parent trainers have also benefited from this experience as they can observe their methods of coaching the parents and more clearly identify what kinds of coaching specifically altered the parents' style of interaction.

In-Home Parent Training Sessions

Approximately one-third of the training sessions are held in the family's home rather than at the Institute or in the community. These sessions are less structured than the training sessions held at the Institute because their purpose is to assess and assist the parents in the implementation of the programs throughout their normal daily routines. In addition to the training of new treatment programs, and assisting parents in the implementation of these programs, the sessions include the following experiences:

- Parents are encouraged to coach one another on their implementation of the programs. Exercises are set up so that one spouse will give the opposite spouse feedback while implementing specific programs. The roles are reversed so that each parent gives and receives feedback. This is taught so that the parents can learn to give each other feedback as well as accept feedback from each other. In the future, when new programs are designed and less supportive feedback is available from the staff, the parents will be encouraged to assist one another in learning the new program.
- The parents are given opportunities to design new treatment programs with guidance from the staff members. As unique problems occur, the parents are encouraged to baseline the behavior, write up treatment plans, and after coordination with the project staff, implement the new treatment program.

- Some training sessions are held at different times of the day in order to help the parents implement the programs at various stressful times. Training sessions held during meal preparation give the trainers a more realistic assessment of the application of the treatment programs into the daily routine.
- During some of the home training session, a 45-minute assessment of the parent-child interactions is conducted. This assessment reveals how accurately the parents are implementing the behavior management programs they have been trained on as well as samples of various child behaviors. The frequency of the child behaviors can be compared to the frequency of the child behaviors gathered weekly at the Institute.

Once the parents have begun the training sessions, the parents are given specific weekend assignments. They are expected to conduct all programs they have been trained on during their weekend home visits. They also are expected to report to the staff any problems they are having with any of the programs, so that the situation can be remedied as soon as possible. In addition to the parents needing opportunities to practice their newly acquired skills, the child also needs as many opportunities to engage in his newly acquired socially appropriate behavior in his home and community settings.

Generally, the parents are expected to count certain behaviors for a 2-hour sample each day that their child is home with them. In addition, they do count every time-out and quiet room they give their child throughout the entire home visit. These counts give the staff specific data which can be compared with the data taken on the child at the Institute. The parents also count every trial and success of each in-session program they conduct with their child during the home visit. All of this data is discussed with the parents, compared with the data gathered at the Institute, and saved for future reference when problems arise.

At the completion of parent training, the parents and significant others involved in the training sessions are generally capable of implementing all of the child's behavior programs correctly. They are also capable of implementing self-help programs, meal manners, and some fine and gross motor programs. Some of the parents become very skilled in implementing the academic and language programs used in the classroom setting. However, all of the families do have a good understanding of what academic and language skills their child has and what skills he needs further assistance and training on. The parents have also gained some general skills in program design and program evaluations so that they will be more skilled in developing new programs as needed. Without exception, the parents have become more confident in their ability to live with and manage the behavior problems of their psychotic or neurologically impaired child. They know that they can influence their child's behavior and are not afraid to intervene and help him grow and develop.

The Role of Significant Others in the Parent Training Process

The project staff have found that although the parents are generally the key people involved in the child's life and consequently need to be highly skilled in dealing with the child, other family members (both immediate and extended) and even family friends can greatly influence the child's environment. Grandparents, aunts, uncles, brothers, sisters, friends, and neighbors often interact with the child, care for him in the parents' absence, or put pressures on the family regarding how the child should be dealt with. However, they can also be a very positive support system for the family if they understand the needs of the child and know how to interact with him.

Prior to expanding the parent training program to include significant others in the treatment process, the project staff had several experiences which made them aware of the significant role played by other people. In one case, an older sibling began to get in trouble with the law and junior high school principal because he began acting out to get his parents' attention. He had never fully understood his sister's problems and the need for his parents' continual concern and supervision of her. He only felt rejected as his parents began spending more time with his sister and even began reinforcing her for many small things she did. He began to feel as if he was not a part of the family system.

In another situation, both of the parents were very well trained on their child's treatment programs, but they received much harassment from the paternal grandmother. She lived in the neighborhood and visited frequently. During her visits, she would intervene in the parent-child interactions by giving much affection to the child whenever the parents attempted to give the child a time-out. She also accused the parents of being cruel and ridiculed them in public. The parents finally stopped all treatment programming whenever the grandmother appeared. The child began to regress and even required a return to the Institute for a short period of time.

In a third situation, the well-trained parents of a 5-year-old girl felt trapped at home and began to cancel all events that would require getting a babysitter. After 4 months of staying home with the child, and having no time to socialize with their friends, the parents began to experience some personal problems.

Situations like those mentioned above greatly concerned the project staff so they began to look at a broader "family system" and "community systems" approach to the treatment process. Although many parent training programs concentrated only on the mother-child relationships, and the PPNIC program had already incorporated the father into the training process, children were still having problems during their home visits and after discharge because of the involvement, or lack of involvement, of other people.

At this point, the project staff began looking at all the people involved in the child's life. The extent and nature of the grandparents', aunts', uncles', and cousins' involvement were discussed with the families prior to admission. The roles other siblings played in the family system and care of the child were discussed. The need for babysitters and substitute care was discussed early in the treatment process. Throughout the entire training process, the project staff were aware of other people's involvement with the child. This initial awareness gave the project staff a more comprehensive picture of the child's life and the additional training needs of people besides the parents.

Depending on the nature and extent of someone's involvement with the child, a specific plan was developed to ensure their positive influence on the child and the family system. Babysitters were often located through a local university campus or high school program. They generally attended only the training sessions conducted in the family's home as it was often difficult and expensive for them to spend several hours driving to and from the Institute. They were typically trained on all of the child's behavior management programs so that they could provide a consistent environment in the parents' absence. They were rarely trained on academic or specific in-session programs. Once initially trained, the parents only had to explain shaping step changes to the babysitters.

Brothers and sisters also participated in the training sessions. Depending on their ages and abilities to implement specific programs, their training varied from teaching 5 and 6 year olds to praise their brother or sister whenever he/she was being good to complete, extensive training identical to that of the parents. Special arrangements were made to have some children excused from school so that they could attend training sessions. In addition, more training sessions were scheduled for evening hours and during school vacations. Generally brothers and sisters attended every other training session. When possible, training sessions were set up with the introduction of a new treatment program for the first, third, fifth, seventh, etc., training sessions, and with reviews of all programs trained on the other sessions. This allowed the siblings to attend only every other training session and still be present at the initial discussion and training of each new program. This also allowed parents to have additional time with the project staff during each of the review training sessions.

The involvement of grandparents, aunts, uncles, and other family and friends also varied greatly from just initial superficial training to extensive involvement. In some cases, family members would only observe some training sessions and then discuss with the project staff the "whys" behind the treatment programs and the reasons for providing the child with a consistent environment. Although this superficial training would not provide the family members with the skills necessary to implement the treatment programs, it did give them an understanding of the child's needs and the treatment programs. This type of training was provided for the paternal grandmother, mentioned earlier, who initially sabotaged the parents' work. In addition, a staff member who was a grandmother herself joined the parent trainers in working with the family and paternal grandmother. After gaining a better understanding of the programs, and after being included as a significant person in the child's life, the grandmother's attitudes changed greatly and she became supportive to the family. In other cases where grandparents have been involved with the child, lived in the same household, or are responsible for child care during the parents' absence, more extensive training was done.

The involvement of community social workers, teachers, psychologists, and other mental health professionals in the treatment process and parent training program has also been found to be a valuable asset to the child's development and success. Details and examples of this kind of community involvement are discussed in Chapter 7.

Since the additional training of family members and significant others has been incorporated into the parent training program, the children and families have received a more comprehensive treatment approach. Families have been given additional support systems, relief from the constant 24-hour-a-day child care, additional family harmony regarding the approaches in dealing with the child, and the involvement of many people who will be significant in the child's future years.

Additional Benefits of the PPNIC Parent Training Model

An individual, family-oriented parent training experience, such as that provided by the Project for Psychotic and Neurologically Impaired Children, meets many needs of the parents and entire family system. The most obvious need, and main purpose of the training program, is to teach the parents the specific behavior management programs necessary to maintain their child at home. Other related purposes include teaching the parents to identify specific problem behaviors; to look for rewards that can be used in modifying behaviors; to learn to assess the effectiveness of a treatment program; to shape their child's behavior by breaking tasks into small shaping steps and gradually expecting more; and to create a positive environment for the child and family. All of these goals or purposes are very specific tasks that can be taught and easily measured. And, indeed, they have been the main focus of the parent training program.

However, there are many other benefits the parent training program provides to the parents and entire family system. Some of the main benefits derived will be briefly reviewed.

The parent training approach of two consistent staff members working with one family for many months, and even years, does facilitate the development of a close trusting relationship. Because of this, families often feel comfortable discussing their concerns and problems about their child. Many of the parents have never had an opportunity to really discuss with experienced staff members their concerns about the child's future, his adolescent years, or changes that may occur at the time of puberty or when the child is too large for them to physically handle him. Although such specific questions are impossible to answer, or even predict, often the family only needs an environment in which their concerns are heard and understood.

Parents also have the opportunity to discuss rather embarrassing situations caused by their child in a more private and trusting relationship. Because psychotic and neurologically impaired children often engage in unique and sometimes embarrassing behaviors, the parents have many such experiences. When a 10-year-old boy masturbates during church, or a 9-year-old girl takes off all her clothes at a neighborhood park, or the notable smearing of feces occurs, parents are often embarrassed and ashamed of their child. However, these are not problems a mother would typically feel comfortable discussing during an afternoon bridge game or a cocktail party. In fact, in the present era of parents pushing their children to achieve, and always comparing Johnny's developmental milestones with the neighbor child, parents of developmentally delayed children often feel uncomfortable talking about their child at all. If they do discuss their child, the responses are often uncomfortable silences, sympathetic acknowledgements, or assurances that their child will outgrow this problem and soon be as normal as anyone.

Because of these common occurrences, parents of children developmentally delayed, psychotic, or with whatever the problem may be do need people they can talk with about their child, their feelings, and the future.

The structure of the 2-hour training sessions every other week, 1 hour of which the parents are actually interacting with their child, specific work assignments on the days their child is home with the parents, and multidisciplinary progress and evaluation conferences every 3 months encourages the parents to spend a lot of time with their child and in discussions about their child. As a consequence, the parents learn a great deal about their child's strengths, delays, abilities, and personality characteristics. They usually acquire more realistic expectations of their child and a better understanding of the many things their child can do.

At the time of admission, some of the families are experiencing a crisis situation with their child. The child is so uncontrollable, disruptive, disagreeable, or withdrawn that the parents have often only interacted with the child when they must—to attend to his physical needs and discipline. Their pattern of interacting may have become very negative and nonrewarding to either the child or parents. More realistic expectations, specific teaching exercises, and discussions of the positive skills and attributes of the child facilitate a change in the parents' approach to their child. They often begin seeing all the things their child can do rather than dwelling on his disruptive behaviors.

The parent training program that teaches specific "how to's" rather than just theoretical explanations also gives the parents specific methods of dealing with inappropriate, disruptive behaviors. Often the parents have read extensively about child development and methods of handling problem behaviors and have tried the generally recommended methods of dealing with them. When these approaches have failed, parents have tried, and tried, and tried different methods of dealing with their child. The parents can lose confidence in themselves as parents, or argue with each other as to disciplinary techniques, and often are told by everyone in their family and neighborhood the specific things they are doing wrong with their child. Teaching the parents specific ways of interacting with their child can help to eliminate some of these problems and frustrations. Some families have been delighted because someone told them exactly what to do with their child. In some cases, marital discord has lessened because the parents tend to argue less about specific methods of discipline and instead have a new goal of working together and learning a new and consistent method of dealing with their child. In some cases, family discord has lessened. Older siblings, aunts, uncles, and grandparents know that the project staff have recommended specific ways of dealing with the child and consequently tend to complain and argue less.

In nearly all case, the parents and other family members become very confident in their ability to handle their child and his problem behaviors. The parents have tried some new ways of interacting with their child, have been given much support and encouragement from the project staff, and have seen the changes in their child's behavior. As they see that they can influence their child's behavior, teach him new skills, and control his disruptive behavior, they begin to gain confidence in themselves as parents.

This confidence has many positive ramifications for the parents and family members. The parents begin to take their child to grocery stores, shopping centers, restaurants, and family gatherings, rather than always making arrangements for someone to stay home. The parents feel more comfortable when questioned about their child's behaviors and their methods of dealing with them. They begin to feel as if they are experts regarding their child, and it shows in their ease and comfort with their child.

Such confidence also helps the parents become real advocates for their child. Parents begin questioning school teachers, psychologists, social workers, and administrators regarding why certain recommendations are made for their child. Often the parents recommend to the school personnel how they think a behavior should be dealt with, what kind of baseline should be collected, and what the specifics of the treatment program should be. Some of the parents have presented data and concrete examples of their child's needs to school board members in order to get the services they needed.

This confidence and advocacy acquired by the parents is one of the major family involvement goals of the project. Because the project adheres to the beliefs that the child is the ultimate responsibility of the family and that agencies can only be catalysts to the family system, that the "special" child will need advocates throughout his life, and that agency personnel are only temporary people in the child's life, the project strives to make child therapists, child advocates, and child specialists of all the family members significant in the child's life.

RESEARCH ON PARENT TRAINING EFFECTIVENESS

Because the investment of staff time and energy is so great and significant for each child and family admitted to the PPNIC, and because it is essential to know whether the procedures have immediate as well as long-term value, the project undertook an extensive research study to assess its effectiveness in adapting and modifying parent-child interactions. The following describes the technical aspects as well as the outcome of that study and begins with a brief literature review.

The utilization of parents as behavior therapists for their own children has several main advantages. First, there are many more children in need of care than there are professionals to treat them (Hawkins, 1972; Walder et al., 1971). Secondly, behaviorally oriented parent training directly deals with the parent-child interaction style and thus may circumvent many of the problems involved with traditional child psychotherapy (Berkowitz and Graziano, 1972). Thirdly, recent research indicates that behavior may best be modified and maintained if done in the natural environment, and if done by those who live in the child's environment and are responsible for providing positive contingencies (Berkowitz and Graziano, 1972).

Parent training programs range widely from single family, single behavior interventions to large scale comprehensive approaches servicing groups of parents whose children display multiple behavioral problems. More recent behaviorally oriented parent training programs have focused their attention primarily on the parent-child interaction system. These researchers have successfully modified parent behavior which in turn was responsible for producing changes in their child's behavior (Hanf, 1969; Johnson and Brown, 1969; Kozloff, 1973; Patterson et al., Peed et al., 1977; Wahler, 1973; Walder et al., 1971). More importantly, however, studies have reported evidence for the need to program for the generalization and maintenance of behavior changes across varying settings (Lovaas et al., 1973; Tharp and Wetzel, 1969; Wahler, 1969). Their studies demonstrated that in order for generalization and durability of behavior changes to occur, it was necessary to establish highly similar contingencies across settings.

The PPNIC parent training program is similar to several other training programs in that it is an integral part of a comprehensive treatment program. As with these programs the PPNIC model conducts training with individual families both on the ward and in the home. Additionally, the PPNIC training program utilizes a combination of training approaches including didactic instruction, modeling, role playing, and direct parent-child practice.

However, there were several key differences in the PPNIC training program. First, during the inpatient phase of treatment, the children go on weekly or biweekly weekend home visits. This provides the parents with many *in vivo* practice sessions with the newly acquired treatment techniques prior to the child's discharge. In addition, the parents collect data indexing the child's behavior during the home visit. Based on these data, adjustments can be made in the training process to meet the special needs of each family. Secondly, the parent training is conducted concurrently with the child's inpatient treatment. This allows the child's treatment program to be adjusted to meet the learning needs of the individual parents. The child's treatment program is geared to the training program so that a child did not begin treatment for additional behavior problems until the parents were able to successfully implement the treatment techniques for all previously implemented behavioral problems.

Method

Subjects. The subjects were 11 sets of parents and their children who were inpatients on PPNIC.

Parent characteristics. Table 5-1 describes the demographic characteristics of the parents, including age, socioeconomic status, education, and other family members.

As Table 5-1 indicates, the parents varied widely in regard to demographic factors. Age ranged from 27 to 57 years, with a mean age of 37 years. Eleven percent earned over $10,000 per year, 22% reported income in the $10,000 range, while 76% reported income of less than $10,000 per year. Fifty percent of all parents received high school diplomas, 33% received advanced education, while the remaining 17% achieved education between the eighth and 11th grade levels. In 44% of the families the child in treatment had two siblings, 22% had five siblings, and families with one, three, and four siblings were divided equally with 11% each. All 22 parents were Caucasian.

Child characteristics. Table 5-2 summarizes the major descriptive characteristics of the children who participated in the present study, including age on admission, sex, and pretreatment behavior management data. As indicated in Table 5-2, eight of the children were males, and three were females. At admission, age ranged from 5 to 11 years, with a mean age of 8 years. All of the children were admitted as behavior management problems, displaying varying degrees of noncompliance, aggressiveness, temper tantrums, and bizarre mannerisms or self-stimulatory type behavior. The children were differentially diagnosed, many with a label of autistic or childhood schizophrenic. All had

Table 5-1. Parent characteristics, including age, socioeconomic status, education, and number of sibs of the family who participated in the present study.

Family Number	Age		Income	Education		Number of Siblings
	Mother	Father		Mother	Father	
1	28	29	5,000–7,999	High School	High School	5
2	51	57	10,000–12,999	High School	College	2
3	38	42	10,000–12,999	High School	Voc. Tech.	4
4	30	31	8,000–9,999	College	High School	3
5	30	31	8,000–9,000	College	High School	3
6	28	30	5,000–7,999	High School	High School	2
7	32	34	8,000–9,999	High School	Eighth Grade	1
8	35	37	5,000–7,999	College	Graduate Degree	0
9	27	33	5,000–7,999	High School	High School	1
10	46	52	8,000–9,999	Tenth Grade	Eighth Grade	5
11	27	27	10,000–12,999	Voc. Tech.	Voc. Tech.	1

severe communication difficulties and delays and met the National Society for Autistic Children's definition of autism.

Noncompliance was described as failure by the child to respond to a staff or parent issued instruction within 5 seconds. Aggressive behaviors, called aggressions, were defined as disruptive behaviors directed at another person. Each aggressive act was recorded as a single count. Aggressions included hitting, kicking, pinching, scratching, pulling, and pinching others. Temper tantrums were defined as object or self destructiveness, as well as disruptive outbursts. Temper tantrums included hitting, kicking, biting, scratching oneself or objects; dumping, tearing breaking materials; and screaming, whining, crying when not physically hurt. Each episode of temper tantrum behavior was counted once. All temper tantrum activity must have ceased for an interval of

Table 5-2. Child characteristics, including age on admission, sex, and pretreatment behavior management data.

			In Home Pretreatment Behavior Management Data			
Subject	Age on Admission	Sex	Compliance	Aggress.	Temper Tantrum	Bizarre Manner
1	8	M	79%	18/hr.	2/hr.	171/hr.
2	10	M	40%	1/hr.	1/hr.	27/hr.
3	7	F	78%	2/hr.	3/hr.	66/hr.
4	8	M	34%	2/hr.	6/hr.	64/hr.
5	6	M	51%	4/hr.	6/hr.	232/hr.
6	6	F	35%	9/hr.	29/hr.	16/hr.
7	8	M	55%	25/hr.	9/hr.	38/hr.
8	11	M	31%	5/hr.	9/hr.	98/hr.
9	5	M	19%	3/hr.	9/hr.	7/hr.
10	10	F	28%	21/hr.	22/hr.	127/hr.
11	5	M	61%	32/hr.	10/hr.	96/hr.

5 seconds before another episode of temper tantrum behavior was recorded. Bizarre mannerisms were defined as self-stimulatory type behavior and included such behaviors as body rocking, hand flapping, tapping, and hands or objects in or on orifices. Bizarre mannerisms were counted separately except that identical mannerisms must have been separated by two 5-second intervals, or a different intervening mannerism, before being counted again.

Procedure

Inpatient treatment program. The inpatient treatment program utilized a behavioral approach consisting of a two-part design. First, the children are positively reinforced for socially appropriate behaviors. The compliance program presents an example of the manner in which positive reinforcement is used. An instruction requiring a motoric response is given to the child. Following compliance, the child is heavily reinforced with physical reinforcement and verbal praise which specifically labels the appropriate behavior, such as "that's nice sitting," or "good standing up." Additionally, whenever a child is observed engaging in appropriate behavior, such as sitting quietly in a chair as opposed to body rocking, he is spontaneously rewarded with verbal, physical, and/or edible reinforcement. Secondly, contingent upon the emission of inappropriate behaviors, such as noncompliance or aggressions, the child receives an immediate time-out which involves a brief removal from the positive environment.

Time-out, as used on PPNIC, consists of requiring the child to sit on the floor away from reinforcing stimulation for a 1-minute period. The time-out program contains a shaping procedure which limits the child's overt behaviors by gradually increasing the behavioral demands placed upon the child during the time-out process. Failure to adhere to the shaping step requirements results in the child's being placed in a phone booth sized room, called a quiet room, for a 2-minute duration.

In addition to the programming designed to deal with excess behaviors, such as noncompliance, aggressions, temper tantrums, and bizarre mannerisms, each child received daily 30-minute sessions of one-to-one therapy for special skill development in each of the areas of occupational therapy, language, and self-help skills. Additionally, the children received 18 hours of academic programming per week. The special skills development was achieved via prompting, shaping, and modeling techniques.

Parent training program. Upon admitting their child to the project, the parents entered into contractual agreement which specified the involvement and responsibilities of both the parents and the staff regarding the parent training process. Similar to the procedure used by Walder et al. (1972), a contract was established in order to increase control over the parents' behaviors. Continued therapy for the child, as well as training for the parents, was contingent upon adherence to the terms of the contract which involved a commitment by the parents of 32 to 36 hours, during which they received highly structured intensive training.

Parent trainers. The training sessions were conducted by a two-member multidisciplinary team comprised of a psychologist or social worker, and a nursing staff member (*i.e.*, RN, LPN, or aide). The team leader was responsible for coordinating the training sessions and assuring that the parents were properly implementing the treatment techniques. The nursing staff member presented the child's progress data to the parents, and shared responsibilities for program presentation, role plays, and collecting behavioral data during parent assessment periods.

Training process and techniques. Parent training was conducted in two phases. The initial and major phase consisted of 10 to 12 “on ward” sessions conducted on an “every other week” basis at the Institute. During this phase the majority of the treatment programs were presented to the parents. The “on ward” sessions were followed by four to six “in home” sessions conducted in the child's home. During this phase any final treatment programs were introduced, and the parents received assistance in overcoming specific problems they may have encountered when implementing the treatment techniques in the home.

"On ward" training. "On ward" training sessions were 2 hours in duration. The first hour began with a review of the child's progress at the Institute followed by training of the new treatment program. Training was conducted through direct instructional procedures and modeling of the new program through staff role plays, followed by parent practice through parent-staff role plays. The treatment programs were organized in terms of concise procedures which operationalized the process for behavior identification and recording, and specified the treatment intervention to be utilized. They incorporated the major components of learning theory and constituted the bulk of the written instructional material submitted to the parents for their understanding.

The second hour was designed to provide the parents with an opportunity to practice the newly acquired treatment program directly with their child. Each parent worked with the child for 20 minutes and received immediate feedback from a parent trainer, while the other parent observed from an observation room and practiced recording behavioral data with immediate feedback from the second parent trainer. The second hour contained an assessment phase which was utilized on training sessions where a new treatment program was not presented due to the pace of the child's inpatient treatment. The assessment phase was designed to assess the parents' ability to implement the treatment programs.

"In home" training. "In home" training sessions, like "on ward" sessions, were 2 hours in duration. The "in home" training sessions followed either a training procedure or assessment procedure. For sessions where a treatment program was slated for training, the "in home" session utilized a training procedure which followed the same format as the "on ward" session: (1) review of the child's ward progress, (2) training of the new treatment procedure using the same techniques as used for "on ward" training, and (3) parent-child practice with immediate feedback from the parent trainers. An assessment procedure was used for parent training sessions when it was not necessary to train a new treatment procedure. This session was designed as a parent-child evaluation period and utilized the following format: (1) review of the child's ward progress, (2) a 45-minute assessment period, and (3) a feedback period. Prior to the 45 minute period, the trainers instructed the parents to go about their daily routine, and to treat the child's behaviors as they had been trained to do. Following the 45-minute assessment period, the data were discussed with the parents, and retraining was conducted in the time remaining depending upon the need as indicated by the data.

Parent reliability and data recording. Beginning with the first "on ward" training session, the parents spent a portion of each session counting and recording child behavior data. Initially, in teaching the counting procedure, the parent trainer cued the parent as to which behaviors to record. Once the parent learned the counting procedure, reliability was assessed by having the parent and parent trainer count and record data separately. At the end of the observation period, the counts were compared and the parent received immediate feedback and retraining where necessary.

The parents utilized the counting techniques learned during the training sessions to record data during the weekend home visits. Prior to each home visit, the parents received a data sheet which outlined the behaviors to be counted. The parents collected data only for the behaviors for which their child was treated, which included the frequency of quiet rooms and a sample count indexing the degree of compliance. The data were returned to the unit following each home visit and reviewed by the clinical staff who made adjustments in the child's treatment program and/or in the parent training program where necessary.

Measurement. The measurement component of the training program was designed to assess the parents and child on three factors: (1) the frequency of the child's treated behaviors, (2) the proficiency with which the parents implemented the treatment techniques, and (3) the dynamics of the parent-child interaction patterns for the compliance dimension.

"In home" data collections. Data were collected in the home prior to training (pretraining), following training (posttraining), and 12 months following the child's discharge from the residential treatment phase of the project. Data collections were 2 hours in duration and were conducted by three observers.

One of the observers collected a 2-hour sample of the child's behaviors, as well as data reflective of the parent's ability to recognize and treat the instances of inappropriate behavior(s) emitted by the child. The same data sampling procedures and definitions were used for home data collections as used in the inpatient phase of the project. The following data were recorded using a series of hand tally counters: the frequency of aggressions, temper tantrums, and bizarre mannerisms emitted by the child, the frequency of time-outs given by the parents for each behavior they were trained to treat, the frequency of compliance commands issued by the parents, the number of commands complied to by the child, the number of time-outs given for noncompliance, and the frequency of spontaneous reinforcement issued by the parents for appropriate child behaviors.

The remaining two observers collected interactional data. A coding system was developed to assess the dynamics of the parent-child interaction process. Each observer coded the interactions between the child and one of the parents. The interactional data was collected in two periods. The first period, lasting 45 minutes, was designed to sample the parent-child interactions during an unstructured period. Throughout this period the family went about their usual daily activities, including the afternoon or evening meal. The unstructured period was followed by a structured sample period during which time the parents and child engaged in certain predetermined activities where an insufficient number of interactions occurred. There were, for example, instances where less than five interactions occurred during an hour of unstructured time. Thus, the structured sample period was instituted to increase the frequency of interactions and thereby make more data available.

Interactional data–compliance dimension. Data collected for the compliance dimension yielded information as to the style and quality of the parent-child compliance interaction process. The data was designed to assess the following sequential components: (1) parental initiation style (*i.e.*, type of command initiated by the parent); (2) child replication (*i.e.*, (child reply to the initial command); and (3) parent response style (*i.e.*, type of response made to the child's reply to the initial command).

Parent initiation style. The interaction process was initiated by the parent via an initial command directed at the child. All appropriate commands were coded with the capital letter *C*. Appropriate commands were defined as any verbal message, except those in the form of a bribe, threat, request, or prompt, which were stated in a directive manner, and which required the child to make a motoric response.

Inappropriate commands were defined as commands which reinforced inappropriate child behavior (bribes, threats), commands which were stated such that the child may have had difficulty understanding the expectations (requests), or commands in which the parents completed the task for the child before the child had an opportunity to comply (prompts). The definitions for the four classifications of inappropriate commands were as follows:

1. Bribe commands: commands in which the parents encouraged a response by promising a reward.
2. Threat commands: commands in which negative consequences of a behavior were stated in order to get compliance.
3. Prompt commands: involved physical assistance in which the parent helped the child complete the task. The prompt must have been on the order of manual guidance by the parent and was always paired with the verbal message.
4. Request commands: those commands in which the parent asked the child to comply rather than telling him to. These were commands where the parents clearly had no intention of giving the child a choice but phrased the command as a request out of force of habit.

Child replication. The child's reply to the parent's command was coded as either success (+) or failure (-). Compliance success was scored whenever the child began to comply within 5 seconds of the initial command. In addition, depending upon the shaping step requirement of the compliance program, the child had to complete the task and remain compliant for specified time periods where appropriate to do so. Compliance failure was recorded whenever the child did not begin to respond within 5 seconds of the command or did not meet the requirements of any additional shaping steps.

Parent response style. The parent responses to the child's compliance or noncompliance were grouped into five response style classifications. The definitions are as follows:

1. Reinforcement: Reinforcement was classified as verbal, physical, and tangible. Verbal reinforcement was defined as any psoitive remark made to the child regarding his behavior. Physical reinforcement consisted of physical contacts such as hugs, kisses, and pats, which demonstrated affection or approval. Tangible reinforcement consisted of food rewards and toys.
2. Repeat commands: A repeat command was a command given by the same parent within 5 seconds after the previous command. Repeat commands, or repeats, included: (a) verbatum repetition of the original command; (b) the original content stated in another form; (c) a completely different command; and (d) the child's name called to get the child to comply.
3. Time-out: Time-out was the removal of the child from his immediate environment to one in which there were fewer or no reinforcing stimuli.
4. Ignore: Ignore, also called no response, was recorded when the parent observed a behavior, either appropriate or inappropriate, but failed to deal with it within 5 seconds of its occurrence.
5. Miscellaneous: Miscellaneous behaviors were any responses which could not be classified in the previously defined categories. These responses included physical prompts without verbal messages, verbal and physical punishment, and nonspecific or unenthusiastic reinforcement.

Results

The data samples for both the children and parents were obtained before treatment, at the time of the child's discharge, and 12 months following the child's discharge. All data were gathered in the child's home with the child and both parents present.

The children were assessed in terms of four general behavioral categories: noncompliance, aggressions, temper tantrums, and bizarre mannerisms. As previously mentioned, noncompliance consisted of failure by a child to respond to staff or adult instruction within 5 seconds. Aggressions were defined as disruptive and/or abusive behaviors directed at someone else.

Temper tantrums consisted of disruptive and/or abusive behaviors directed at oneself or an object. Bizarre mannerisms were defined as self-stimulatory behaviors. The results of the children's behavior data are presented in Figure 5-1.

Separate one-way analysis of variance (Winer, 1971) were computed for each program across sampling periods. Table 5-3 summarizes the outcome data for

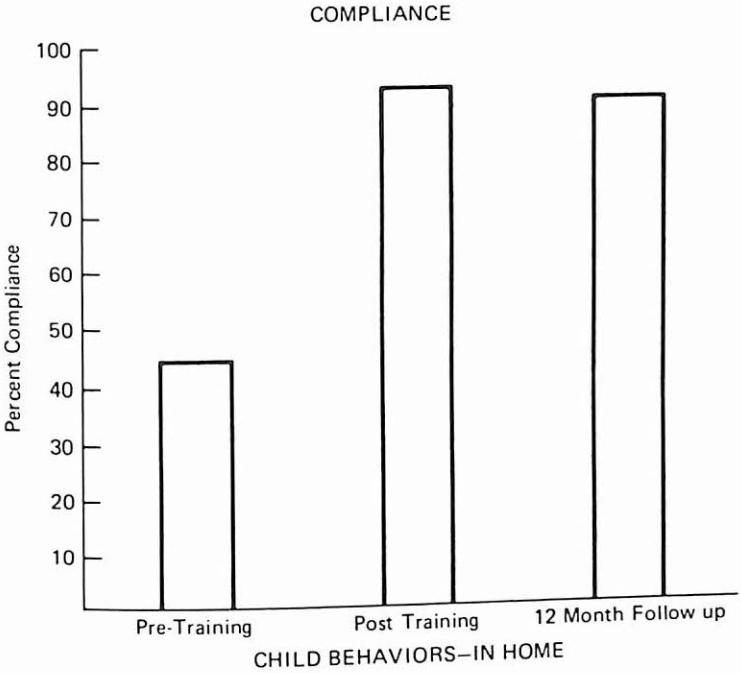


Figure 5–1a. The childrens compliance in the home prior to treatment which corresponded to the parents' pre-training phase, at discharge which corresponded to the parents' post training phase, and at 12 month follow up (sample period).

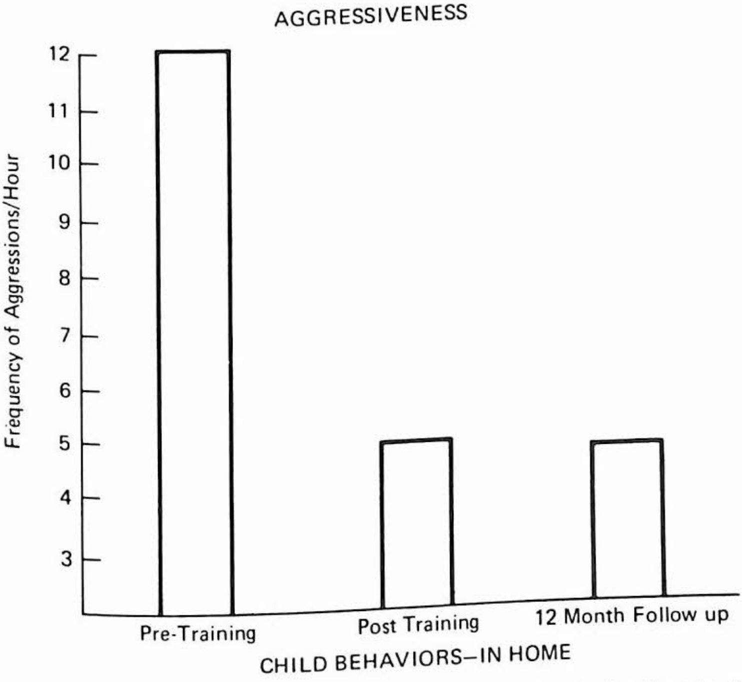


Figure 5–1b. The childrens aggressiveness in the home prior to treatment which corresponded to the parents' pre-training phase, at discharge which corresponded to the parents' post training phase, and at 12 month follow up (sample period).

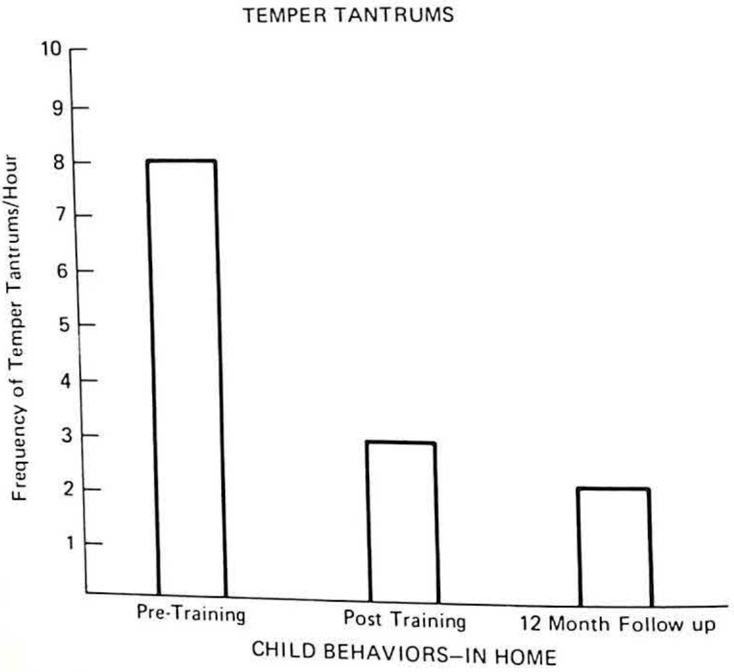


Figure 5–1c. The childrens temper tantrums in the home prior to treatment which corresponded to the parents' pre-training phase, at discharge which corresponded to the parents' post training phase, and at 12 month follow up (sample period).

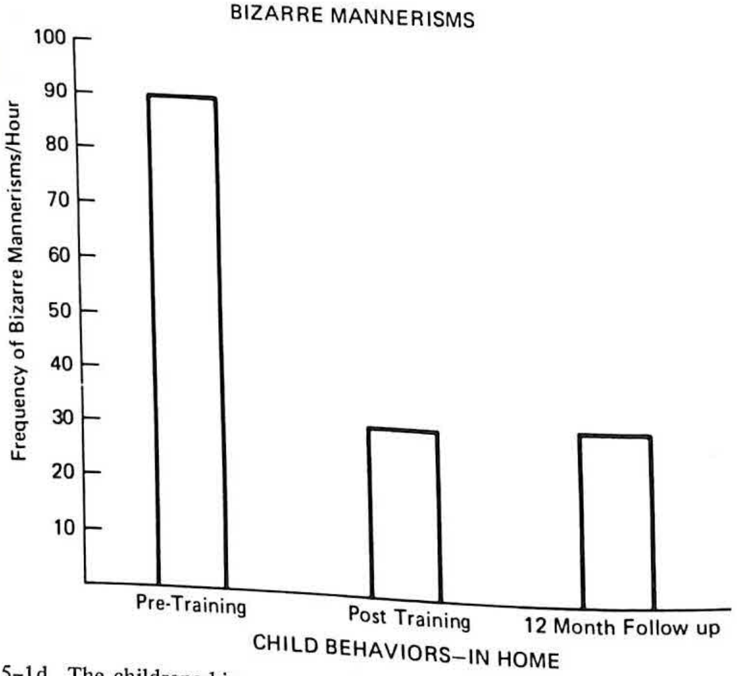


Figure 5–1d. The childrens bizarre mannerisms in the home prior to treatment which corresponded to the parents' pre-training phase, at discharge which corresponded to the parents' post training phase, and at 12 month follow up (sample period).

Table 5-3. Analysis of variance—child behaviors.

Behavior Dimension	F Value	Level Of Significance
Compliance	35.5	.01[a]
Aggressiveness	4.13	.05[b]
Temper tantrums	5.1	.05[b]
Bizarre mannerisms	5.9	.01[a]

[a] F crit.$_{(2,20)}$ = 5.85
[b] F crit. $_{(2,20)}$ = 3.49

the children's behaviors, indicating main effects for all four categories with probability levels exceeding .01 for compliance and bizarre mannerisms, and .05 for temper tantrums and aggressions. Thus, the children showed significant overall improvement for each behavior sampled.

In order to assess when the major changes occurred, *i.e.*, between baseline and discharge, discharge and follow-up, or whether any deteriorization occurred between discharge and follow-up, Newman-Keuls (Winer, 1973) comparisons were computed among the three sampling periods for each of the four behavioral categories. The results of the Newman-Keuls comparisons with indications of level of significance and difference between means for each sample period comparison are presented in Table 5-4. Inspection of the data reveals that the comparisons resulted in the following trend: significant differences were established between baseline and discharge levels of behavior, and between baseline and follow-up levels, but not between discharge and follow-up. Thus, it can be concluded that the significant improvement occurred between baseline and discharge, which was further maintained in the community. Aggressive behavior was the only dimension departing from this trend in that there was no signifi-

Table 5-4. Newman-Keuls sampling period comparisons—child behavior.

	Baseline vs. Discharge		Baseline vs. Follow-up		Discharge vs. Follow-up	
Behavioral Dimension	Level of Signif.	Difference Between Means	Level of Signif.	Difference Between Means	Level of Signif.	Difference Between Means
Compliance	.01	57%	.01	51%	ns	6%
Aggressions	.05	7/hour	ns	7.5/hour	ns	.5/hour
Temper tantrums	.05	5.4/hour	.05	6.1/hour	ns	1.3/hour
Bizarre mannerisms	.01	58.5/hour	.01	54.1/hour	ns	4.4/hour

cance between the baseline and follow-up periods. However, the follow-up rate resulted in a decrease which was in the desired direction.

The parents' behaviors were assessed in terms of interactional patterns or behaviors, and were divided into a dimension for determining an estimate of the parents' interaction with their child regarding compliance and a behavior treatment dimension for determining the degree to which they were identifying and implementing treatment procedures for aggressions, temper tantrums, bizarre mannerisms, and spontaneous reinforcement.

The compliance dimension included five assessment areas: reinforcement, ignore, repeat commands, time-out, and miscellaneous behaviors. (A definition for each area appears in the methodology section.) The results of the compliance dimension are presented in Figure 5-2.

The behavioral treatment dimension included assessment of time-outs for aggressiveness, temper tantrums, bizarre mannerisms, and spontaneous reinforcement. The results of this dimension are presented in Figure 5-3.

Table 5-5 presents the one-way analysis of variance for the parental behaviors indicating the main effects for all the dimensions. Probability levels exceeded .01

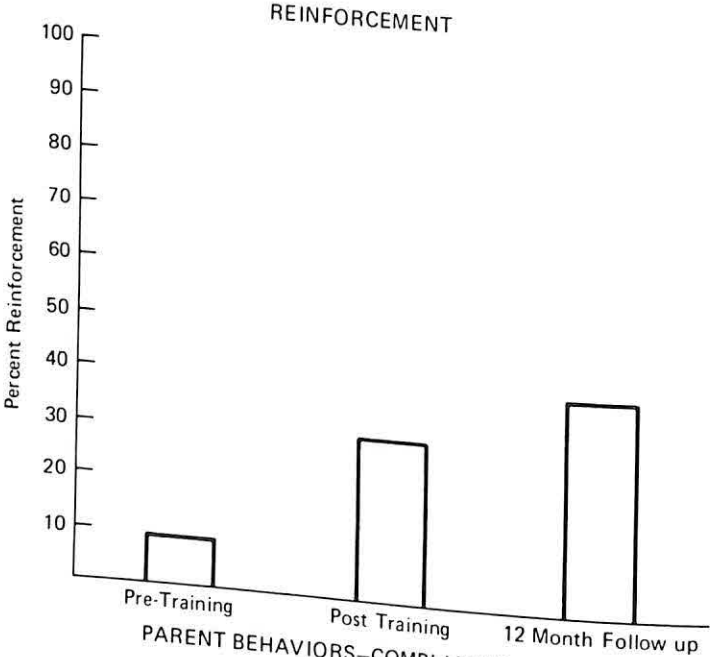


Figure 5-2a. The parents' behavioral interaction patterns in the home in response to the child's compliance, or non-compliance, Prior to training, at the end of training and at 12 month follow up (sample periods).

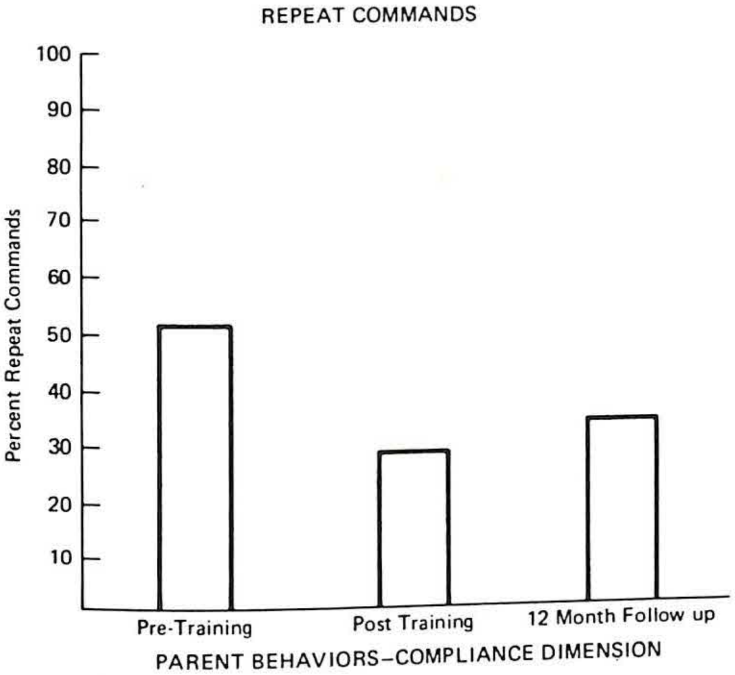


Figure 5–2b. The parents' behavioral interaction patterns in the home in response to the child's compliance, or non-compliance, Prior to training, at the end of training and at 12 month follow up (sample periods).

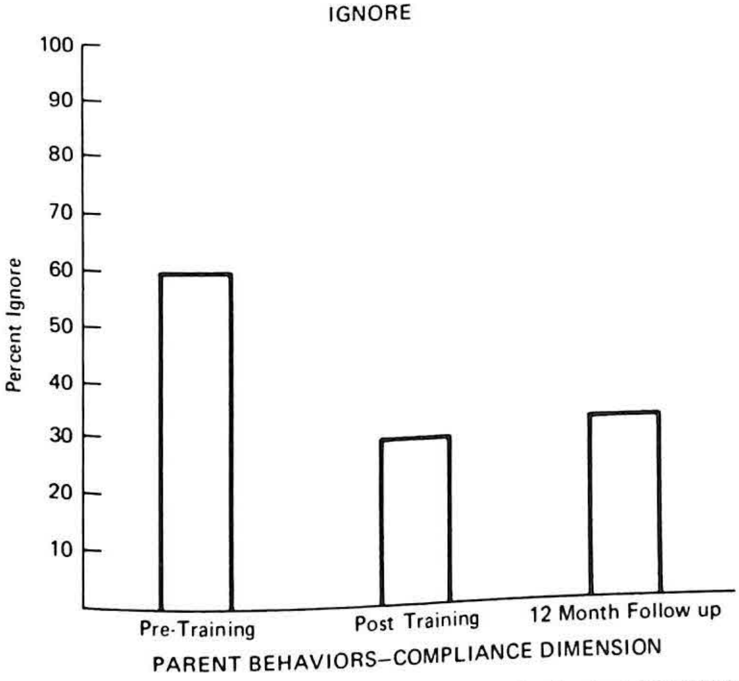


Figure 5–2c. The parents' behavioral interaction patterns in the home in response to the child's compliance, or non-compliance, Prior to training, at the end of training and at 12 month follow up (sample periods).

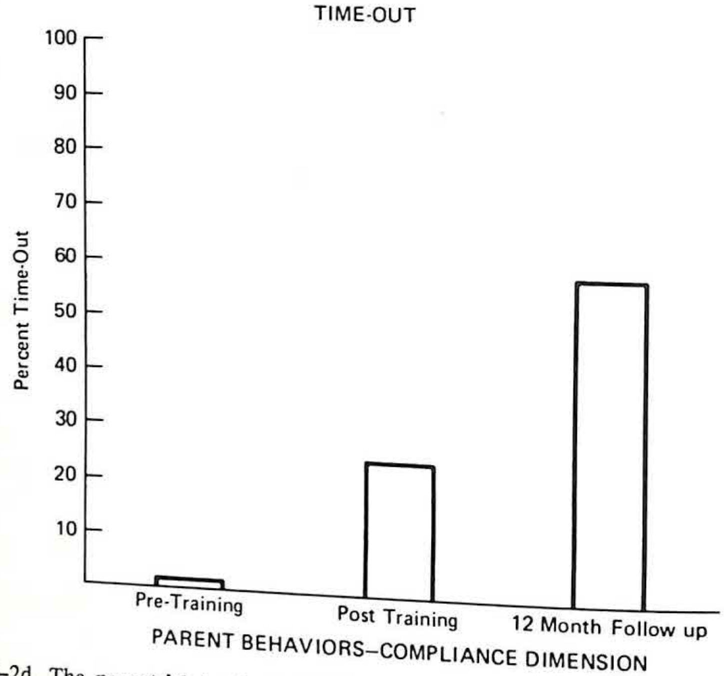


Figure 5-2d. The parents' behavioral interaction patterns in the home in response to the child's compliance, or non-compliance, Prior to training, at the end of training and at 12 month follow up (sample periods).

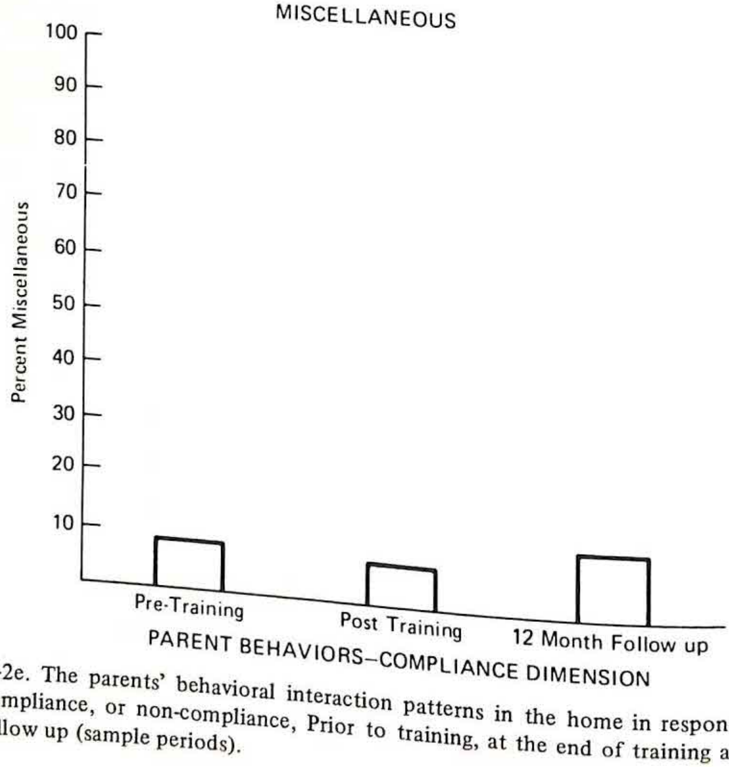


Figure 5-2e. The parents' behavioral interaction patterns in the home in response to the child's compliance, or non-compliance, Prior to training, at the end of training and at 12 month follow up (sample periods).

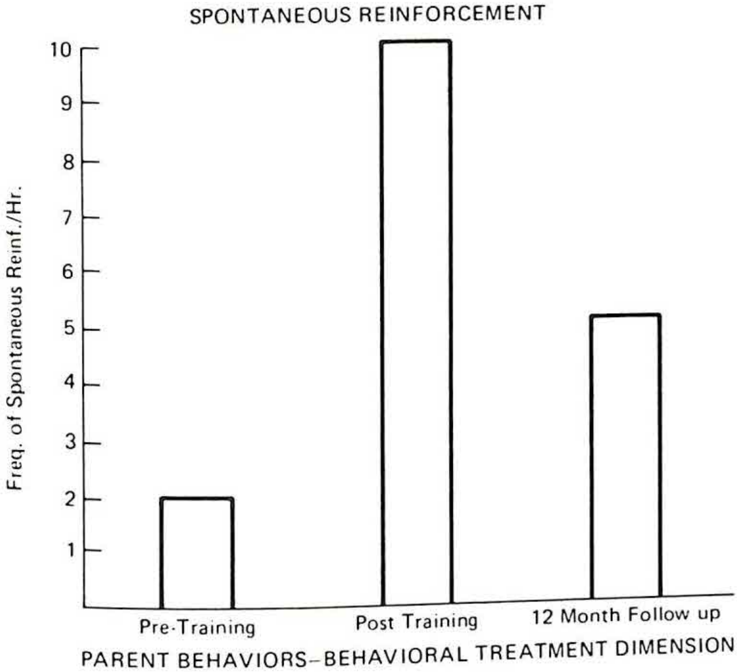


Figure 5-3a. The parents' behavioral treatment interaction patterns in the home in response to the child's emission of certain inappropriate behaviors, (Spontaneous reinforcement), prior to training, at the end of training and at 12 month follow up (sample periods).

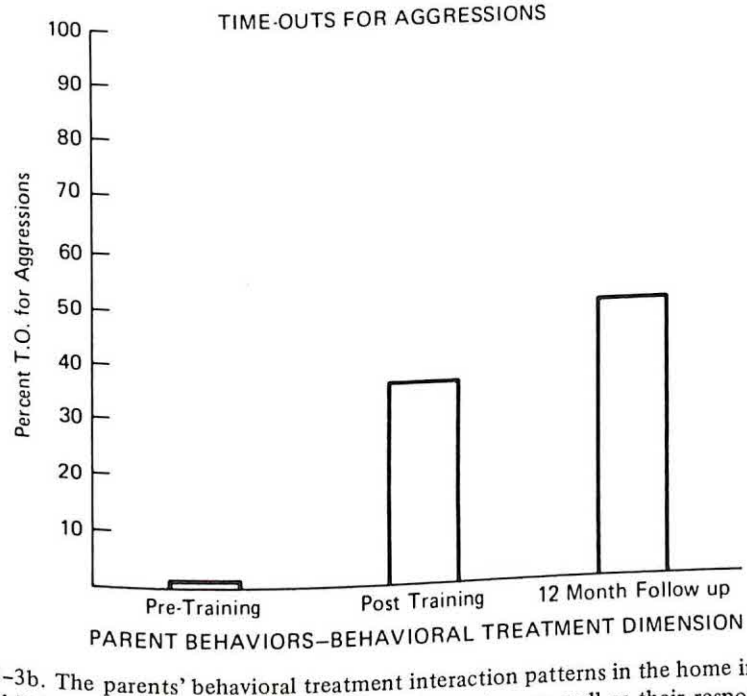


Figure 5-3b. The parents' behavioral treatment interaction patterns in the home in response to the child's emission of certain inappropriate behaviors, as well as their response to the child's nonemission of those behaviors, prior to training, at the end of training, and at 12 month follow up (sample periods).

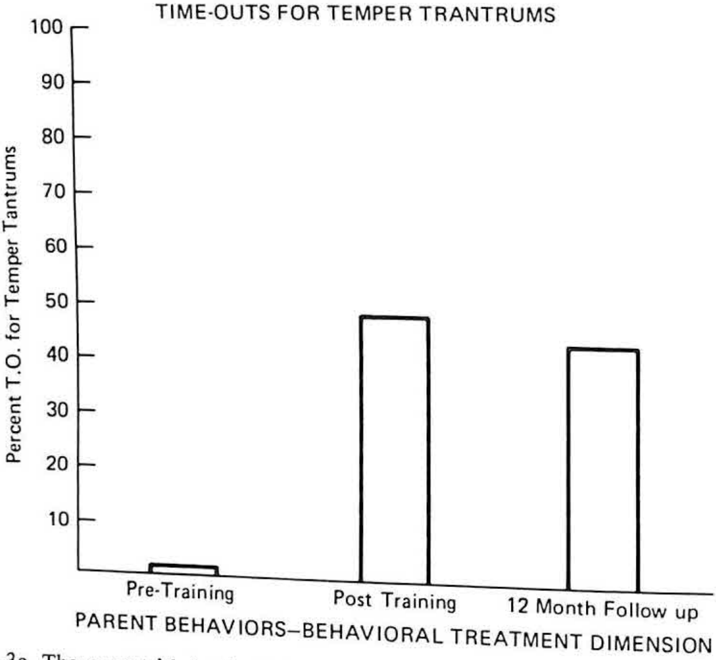


Figure 5-3c. The parents' behavioral treatment interaction patterns in the home in response to the child's emission of certain inappropriate behaviors, as well as their response to the child's nonemission of those behaviors, prior to training, at the end of training, and at 12 month follow up (sample periods).

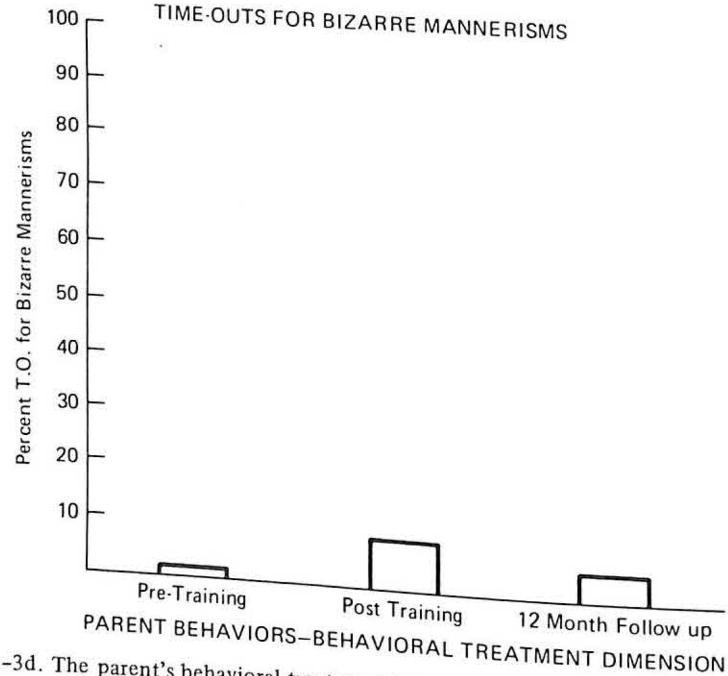


Figure 5-3d. The parent's behavioral treatment interaction patterns in the home in response to the child's emission of certain inappropriate behaviors, as well as their response to the child's nonemission of those behaviors, prior to training, at the end of training, and at 12 month follow up (sample periods.)

Table 5-5. Analysis of variance—parent dimensions.

Compliance Dimension	F Value	Level Of Significance
Reinforcement	12.4	.01[a]
Repeat commands	11.4	.01
Ignore	12.0	.01
Time-out	8.2	.01
Miscellaneous	2.2	ns
Behavior Treatment Dim.	**F Value**	**Level Of Significance**
Time-out: aggression	4.18	.05[b]
Time-out: temper tantrums	6.18	.01
Time-out: Bizarre mannerisms	1.7	ns
Spontaneous reinforcement	8.2	.01

[a] F crit. $_{(2,20)} = 5.85$
[b] F crit. $_{(2,20)} = 3.49$

for the compliance dimension categories of reinforcement, repeated commands, ignore, time-out, and for the behavioral treatment dimension category of temper tantrums, while the behavioral treatment category of aggressions was significant at the .05 level. No significance was found for the compliance dimension category of miscellaneous behaviors, or for the behavior treatment dimension category of bizarre mannerisms.

Newman-Keuls comparisons were also computed regarding the parental dimensions. The results are presented in Table 5-4. Computation across sampling periods revealed a trend similar to that presented by the childrens' data. Again, with the exception of the compliance dimension category of miscellaneous behaviors, and the behavioral treatment dimension category of bizarre mannerisms, comparison of baseline (pretraining), discharge (posttraining), and 12-month follow-up indicated that significance was gained between the baseline and discharge, and the baseline and follow-up sampling periods, while the comparison between the discharge and follow-up sampling periods demonstrated no significance. The time-out category deviated slightly from this trend in that it showed continued significant improvement from posttraining to follow-up rather than just maintenance of the posttraining level as was the case with the other categories.

The spontaneous reinforcement category showed significant improvement from pretraining to posttraining. However, the rate of spontaneous reinforce-

Table 5-6. Newman-Keuls sampling period comparisons—parent dimensions.

	Baseline vs. Discharge		Baseline vs. Follow-up		Discharge vs. Follow-up	
Compliance Dimension	**Level of Signif.**	**Difference Between Means**	**Level of Signif.**	**Difference Between Means**	**Level of Signif.**	**Difference Between Means**
Reinforcement	.01	27%	.05	30%	ns	3%
No response	.01	20%	.01	23%	ns	3%
Repeat commands	.01	27%	.01	26%	ns	1%
Time-out	.01	24%	.01	57%	.01	33%
Miscellaneous	ns	1%	ns	6%	ns	7%
Behavior Treatment Dim.	**Level of Signif.**	**Difference Between Means**	**Level of Signif.**	**Difference Between Means**	**Level of Signif.**	**Difference Between Means**
Time-out: Aggression	.05	38%	ns	40%	ns	3%
Time-out: Temper tantrums	.05	48%	.05	45%	ns	3%
Time-out: Bizarre mannerisms	ns	9%	ns	6%	ns	3%
Spontaneous reinforcement	.01	9/hour	ns	3/hour	.05	6/hour

ment dropped substantially between the posttraining and 12-month follow-up period, therefore showing no significance.

The miscellaneous behavior category for the compliance dimension was the only category not resulting in significance across any of the sampling period comparisons.

Discussion

Presented in this study is the evaluation of a parent training model developed at the Project for Psychotic and Neurologically Impaired Children. The training program employed a combination of teaching approaches including didactic instruction, modeling, behavioral rehearsal, and direct feedback in training the parents. The results indicate that the training methods used were effective in teaching parents behavioral treatment techniques, which confirms earlier research which utilized similar training approaches in combination (O'Dell, 1974).

The inpatient program was designed to treat children whose disruptive behaviors were of the magnitude and multitude which required that the children be removed from the natural environment for treatment. It was therefore necessary to incorporate in the training model several basic components designed to maximize similarities of contingencies from the institute to the home setting. Several procedures were utilized to accomplish that goal. First, the parents were taught to use the same treatment techniques in the home as were used by staff in the inpatient treatment phase, thus replicating the procedure used by Wolf et al. (1964). Secondly, the child's treatment program, because of the controlled inpatient program, could be adjusted to meet the learning needs of each family. If the parents encountered difficulty with a particular procedure, then treatment for a new child behavior was not introduced until the parents demonstrated that they understood all previously learned techniques. This procedure circumvented the problem of having a child treated for a particular problem at the Institute while not being treated for that behavior at home during weekend visits. Thirdly, similar to the procedure of Wolf et al. (1964), weekly weekend home visits were scheduled for the purpose of promoting generalization of the child's newly acquired behaviors and the parents' application of treatment techniques from the Institute to the home. The home visits provided much *in vivo* practice trials with the newly acquired behaviors and treatment techniques in the home setting. Finally, the model included an "in home" training phase in addition to the "on ward" training phase. While the "on ward" phase was designed to provide a controlled environment in which parent learning could be facilitated, the "in home" phase was designed to aid generalization of treatment techniques and child behaviors from the Institute to the home.

The results of the parent and child data clearly indicate that the procedures used in the present model were effective in establishing generalization of child behaviors and parent application of treatment techniques in the home.

As for the issue of durability of child behaviors and parent implementation of treatment procedures, the results of the 1-year follow-up indicate that the parents continued to implement the treatment techniques and that the behavioral gains made by the children during inpatient treatment were being maintained. A comparative analysis of the components in the model was not done. Therefore, it is not possible to specify which of the components were essential in maintaining the parents' use of the treatment techniques and the child's behavior after PPNIC involvement terminated. However, it is reasonable to speculate that the treatment techniques learned by the parents were effective management techniques; thus they continued to implement them. It is also clear that the interfering behaviors had been reduced, and their replacement with appropriate pro-social skills made families more positive in their interactional pattern.

Summary

This chapter has attempted to describe in a succession manner the many issues involved in the training of parents, siblings, family members, and other significant persons in the child's life as therapists. A model for training was presented, emphasizing the need for individualizing programs for parents to obtain maximum benefits. In addition, the side effect of such intensity training often led to the parents developing a more assertive role in advocacy for their child at the community level. The chapter closed with a 1-year follow-up assessing the effectiveness of the model in terms of the generalization and maintenance of the child's problem behavior. This research clearly supports the model as an effective system for facilitating child generalized behaviors. It is clear from this research that one extremely important component for maintaining psychotic and neurologically impaired children in their home community is extensive parent training.

6

Issues in School Intervention

Several authors of articles discussing the treatment of autisticlike children refer to the importance of generalization of the treatment effects from one environment to another (Stevens-Long and Lovaas, 1974; and Rincover and Koegel, 1975). Rincover and Koegel noted that the transfer of treatment gains across settings was not consistent. Their assessment was actually in an environment of relatively minor change—maintaining a behavior from a treatment room to a novel setting. They noted that all the children who failed to generalize did so after the stimulus that was functional during training was identified and introduced into the extratherapy setting. This reminds one of the extreme selective responding and bizarre stimulus control often noted in autisticlike children. Similarly, Baer et al. (1968) and Stevens-Long and Lovaas (1974) present a position that measurement of change during treatment must include stimulus generalization or the degree to which an established behavior is maintained outside of the treatment environment. They also note that generalization over time is of extreme importance. Eventually, the authors of this book have developed similar attitudes from extensive trial and error experiences with returning autisticlike children to their home communities. Realizing that the generalization of behavior change is quite poor for such children, the project focuses heavily on replicating, in a modified fashion, the treatment environment found effective at the Institute and adapting it to the home and school. The previous chapter described in detail the process of generalizing that treatment into the home through extensive and frequent home visits with thorough training to the parents and family support systems. Likewise, a similar model has been developed to provide elaborate training on behavior management techniques to the public school system, each system being trained individually on the special programs of the child returning to the classroom. Since most children come into the residential section of the PPNIC because of serious unmanageable behaviors, this continued control is typically of the utmost importance in maintaining a child outside of the Institute and is a priority in training. Good child management allows for the teacher to then focus on the appropriate academic tasks a child might learn.

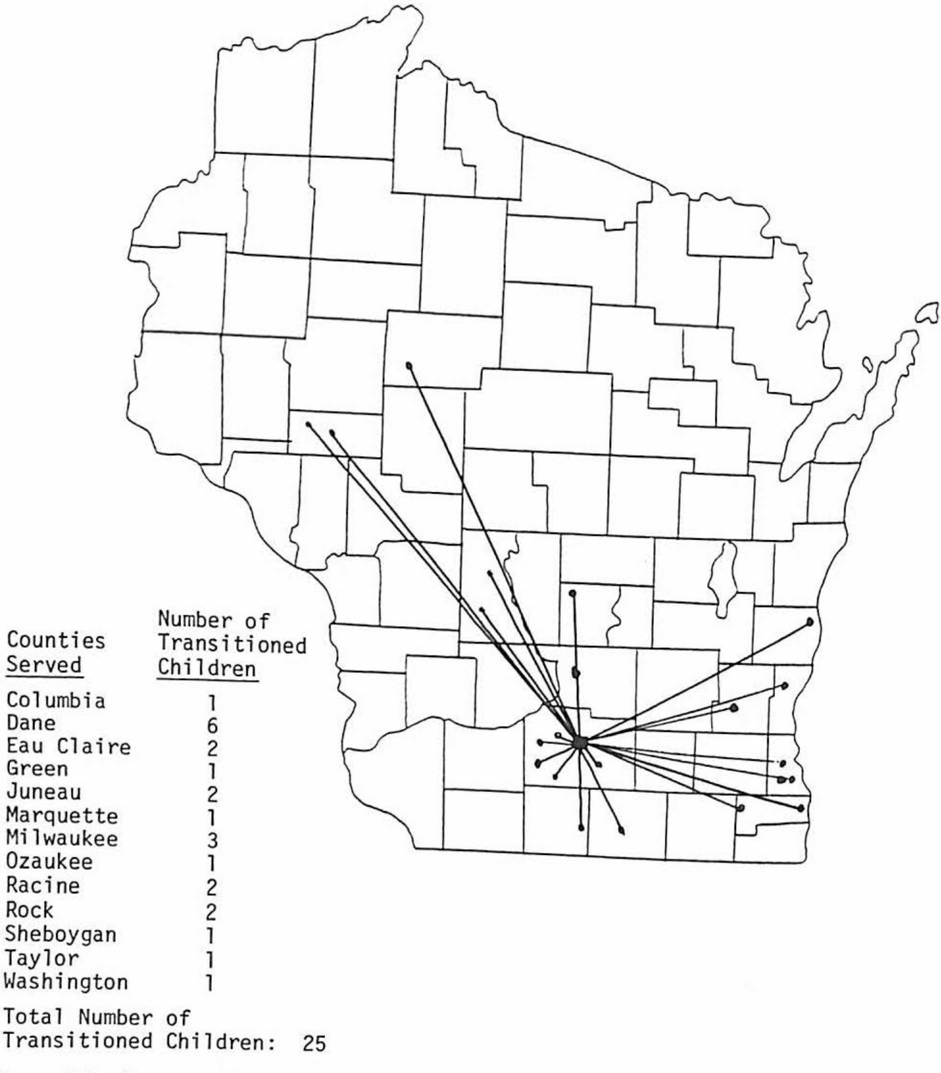
Interestingly, there has been little published on this issue of generalization from a residential environment to home communities. This may be due to the fact that frequently, once a child is institutionalized, our social system lacks a support system and/or the motivation to tackle treating such children in the community. One can certainly compliment the efforts of several public school systems which have special programs to facilitate local programming for such children, such as Project TEACH in North Carolina and the superb classroom facilities including extensive parent involvement in the Milwaukee, Wisconsin public schools. Unfortunately, such projects are the exception rather than the rule. More often, it is easier for a public school system to recommend residential placement than develop the high cost programs necessary for maintenance in local communities. This may be further supported by social service agencies or mental health boards who prefer to pay the high cost of residential placement rather than deal with or attempt to deal with a support system for a family that they, in fact, may know little about treating. The case for integrating autistic children into the public schools, after brief remediation in a residential center for behavior control and self management as well as extensive remedial training in the preacademic and pro-social behavioral area, is somewhat similar to the problem of hearing impaired or deaf children. Most often, because a community may lack the special expertise necessary to educate a deaf child, he is placed in a residential center and not returned until young adulthood, when the social adaptation becomes much more difficult for that person. One can hardly question that the intensity of training may be better in a school for the deaf, but can't these children also benefit from the normalizing effect of family and community life? The authors of this book feel that the time has come for communities to learn to adapt to the differences among their citizens, including deaf and autisticlike children. The PPNIC therefore began an extensive effort to provide a school support system to families whose children were returning to their home communities.

As mentioned previously, a central aim of the PPNIC at the Mendota Mental Health Institute (MMHI) is to provide an environment of growth and positive rehabilitative opportunities for psychotic children through both a short-term inpatient treatment unit as well as an outpatient consultation and training model. One of the major services provided by the project is a specialized program which trains teachers in rural communities on the management of severely disturbed children.

The primary focus of the Community Teacher Training Project developed out of a realization that many children residing in rural areas of Wisconsin were not being programmed successfully at the community level. Frequently these children ended up in state or private institutions for extended residential treatment. The PPNIC was developed in 1972 to return such children to their home communities and to prevent long-term institutional care. Parents were well trained on management as well as educational procedures for their children. In spite of the parents' extensive training, certain children were failing in their school placements and were being referred for residential care. It was felt that a good number of these failures reflected inadequate skills and training on the part of often well-intended teachers, rather than the child's inability to be programmed for at the community level. Most special educators are simply not trained or experienced with such severely disturbed children. In 1974, in an effort to provide each child with the greatest probability of success, an extensive Community Teacher Training Project was developed and established as part of the regular transitioning process for children who had been receiving treatment at the PPNIC. Also, this training program became available to any school system in the state where there was an interest in preventing institutionalization of young psychotic children. Thus the Community Teacher Training Project has two focuses: (1) providing training to all community teachers who receive former inpatients from the PPNIC and (2) consultation and training to any teachers or school systems requesting assistance on either a case-by-case model or a general program consultation model.

In the past 2 years, 25 children have been transitioned into community classrooms after receiving inpatient treatment on the PPNIC, and another 26 children were serviced through case consultation and training in the community with no inpatient treatment utilized. Figures 6–1 and 6–2 illustrate the geographic location of these training areas respectively. In general, the training program applies for both groups of children, although there is generally more flexibility in designing the training for the consultation cases. For those children treated on an inpatient basis, the community special education program director is involved along with relevant staff at regular meetings so that he/she is always aware of current progress the child is making. Discharge planning generally begins with the school after 3 months of treatment although the average length of stay for children is around 8 months. A reciprocal contract is established with the local school with the training of the community teacher beginning about 1 month prior to discharge. This process has been diagrammed in Figure 6–3 to better illustrate the procedure.

The formal transitioning process is divided into two phases. The first phase involves a 2-day workshop conducted at PPNIC. The training workshop is separated into five parts including an orientation to treatment approaches and philosophy, a description of the child's referral behaviors and treatment goals, a behavior management training session, a review of the child's preacademic programming, and a presentation of the child's current academic, language, and self-help skill programming.



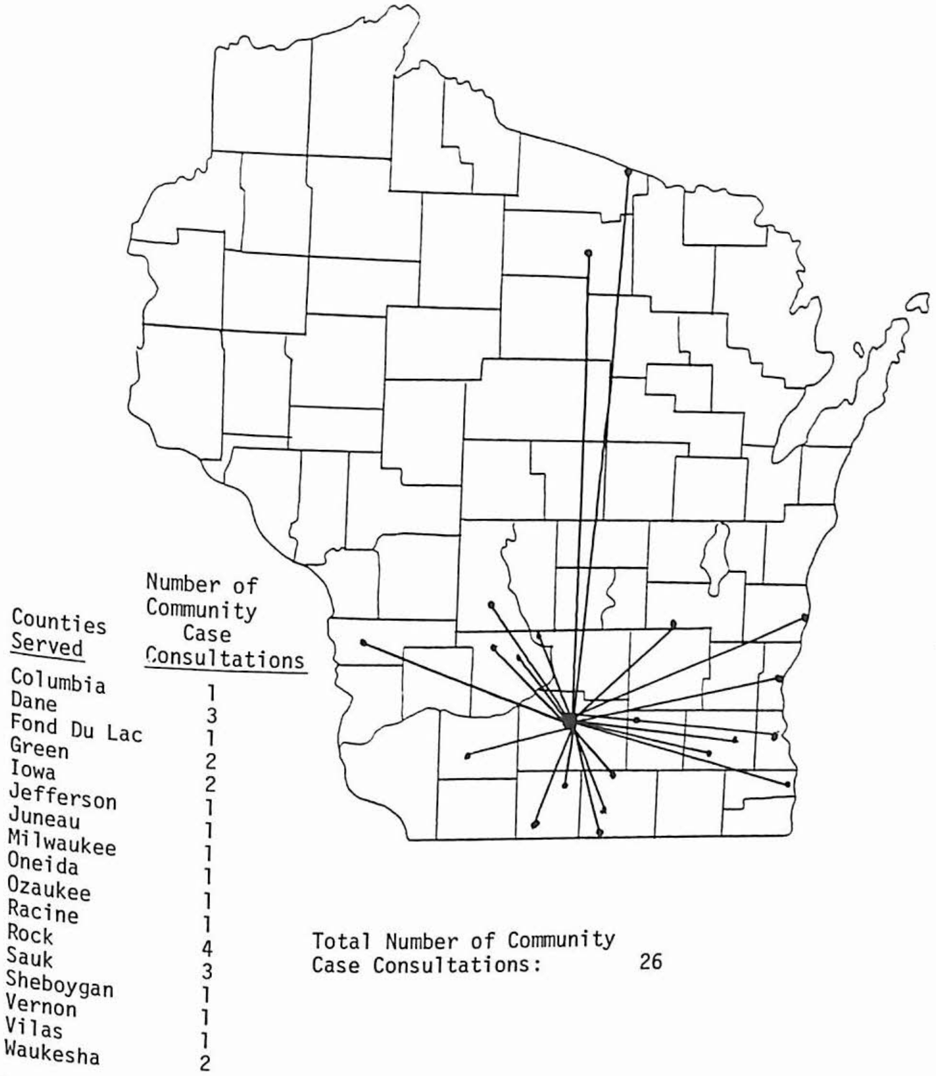
Counties Served	Number of Transitioned Children
Columbia	1
Dane	6
Eau Claire	2
Green	1
Juneau	2
Marquette	1
Milwaukee	3
Ozaukee	1
Racine	2
Rock	2
Sheboygan	1
Taylor	1
Washington	1

Total Number of Transitioned Children: 25

Figure 6–1. Communities served with teacher training project (25 inpatients returned to their homes).

Orientation includes a tour of the PPNIC inpatient unit and a review of the child's daily routine. General behavioral techniques used on the unit are discussed. The basic areas covered include the types and usage of reinforcement, the style of the time-out program, the topography of various inappropriate social behaviors (*i.e.*, aggressions, temper tantrums, and bizarre mannerisms), and the data collection-evaluation system as it applies to consistent treatment.

The workshop continues with a discussion of the child's referral behaviors.



Counties Served	Number of Community Case Consultations
Columbia	1
Dane	3
Fond Du Lac	1
Green	2
Iowa	2
Jefferson	1
Juneau	1
Milwaukee	1
Oneida	1
Ozaukee	1
Racine	1
Rock	4
Sauk	3
Sheboygan	1
Vernon	1
Vilas	1
Waukesha	2

Total Number of Community Case Consultations: 26

Figure 6-2. Communities served with teacher training project (26 outpatient community case consultations).

Pretreatment and posttreatment data is provided and progress is discussed. A brief explanation of the behavioral programs and specific treatment goals is presented.

The major part of the workshop involves training the community teacher to implement behavior management treatment programs. The general training procedure used includes a thorough description of each treatment program, the use

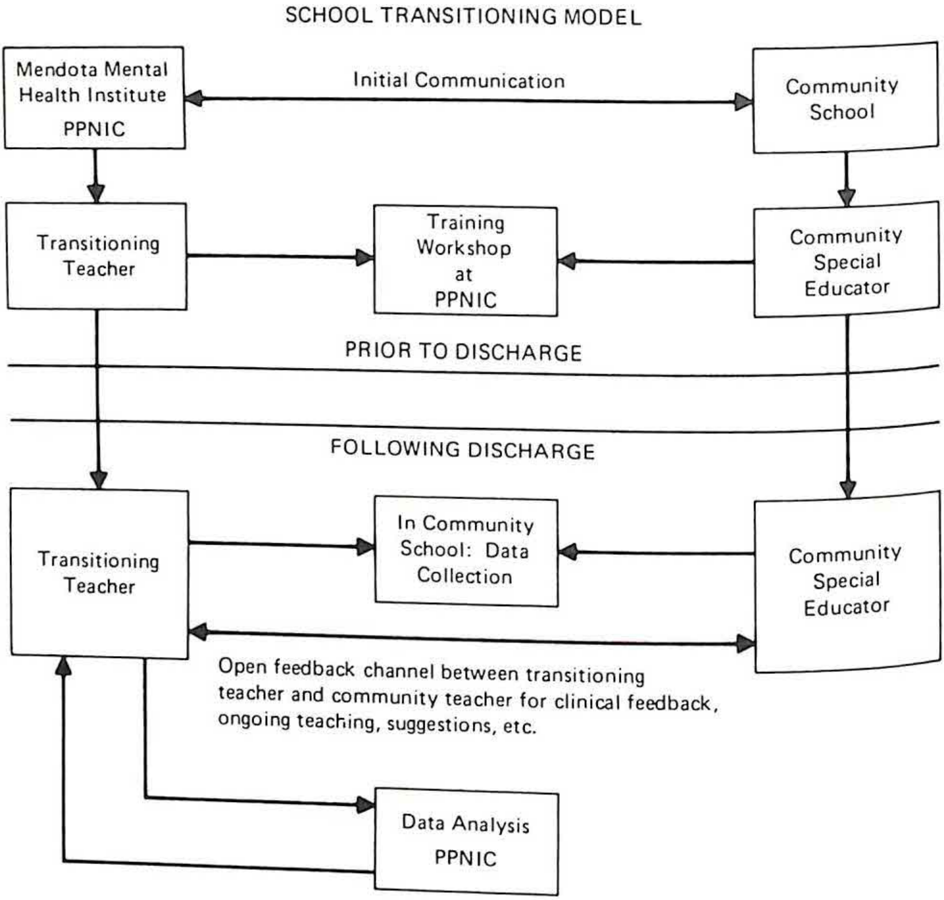

SCHOOL TRANSITIONING MODEL
Mendota Mental Health Institute PPNIC
Initial Communication
Community School
Transitioning Teacher
Training Workshop at PPNIC
Community Special Educator
PRIOR TO DISCHARGE
FOLLOWING DISCHARGE
Transitioning Teacher
In Community School: Data Collection
Community Special Educator
Open feedback channel between transitioning teacher and community teacher for clinical feedback, ongoing teaching, suggestions, etc.
Data Analysis PPNIC

Figure 6-3. Diagram of the interactional system between PPNIC and community schools.

of teacher/staff role play sessions, and delivery of specific feedback on the teacher's performance. In addition, the teacher's performance is assessed during a 20-minute structured role play. This assessment consists of specific data on the teacher's implementation of the behavior management programs. The teacher is then given additional role play training for the specific aspects of the treatment programs where more practice is needed. The training continues with the staff demonstrating the use of these programs while working with the child. The community teacher is then instructed to work with the child while he/she receives immediate feedback on his/her performance. A second 20-minute structured sample is then taken of the community teacher's ability to administer the behavioral treatment programs with the child. Feedback is given to the community teacher, and if the teacher is having problems with any aspect of the programs, future training sessions are planned.

The fourth section of the workshop involves the training of preacademic behaviors including eye contact, task looking, and independent play programs. The treatment programs are read and discussed and role plays are used. Upon completion of this training unit, the teacher should adequately demonstrate the implementation of these programs to the staff.

The last part of the workshop concentrates on programming in academic, language, and fine and gross motor skills areas. An example in the area of language programming would include training on whatever system of communication board, signing, or speech. These are skills that can be generalized to the new classroom and make adjustment to the new environment easier for both the child and the teacher. Emphasis is placed on the child's present level of functioning in all of the skill areas mentioned and on recommendations for future programming.

The second phase of the transitioning process is an intensive follow-up after discharge. During this phase the transitioning teacher makes regular visits into the community classroom. The schedule for the transitioning visits is finalized with the community classroom teacher at the conclusion of the workshop. In addition, the transitioning teacher and the community teacher discuss how he/she would like to utilize PPNIC staff in his classroom. As a rule, for the first 8 weeks visits are made on a weekly basis; thereafter they are reduced to a bimonthly basis until the end of the academic year.

During each visit data are collected to determine the teacher's ability to implement the behavioral management techniques learned in the workshop and to determine if the child is maintaining the predischarge levels of behavior. These data provide an important tool with which the transitioning teacher can focus on problem areas and thus provide clinical input.

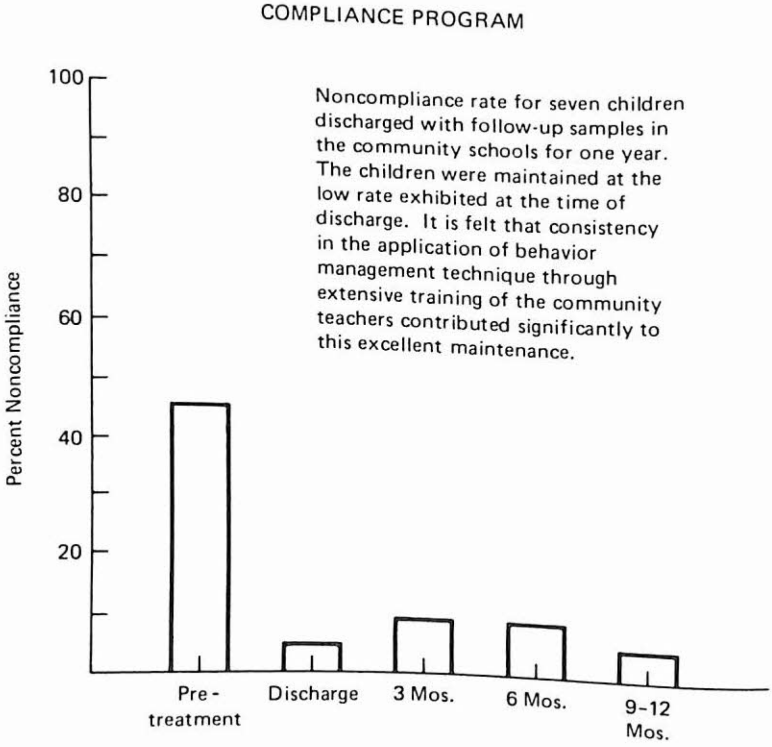
However, in most cases, the transitioning teacher functions not only as a consultant, offering assistance in establishing more appropriate behavioral or academic programs to better facilitate the child's transition, but also as an additional classroom aide or teacher. The transitioning teacher actively participates in classroom activities that take place when he/she is there. For example, in addition to collecting the follow-up on how well the child is doing, he/she may teach a reading group, join in an art, music, or physical education program, toilet or change other children when necessary, or help out in classroom field trips or parties. The goal is to be as active and productive a member of that particular classroom as the community teacher will allow. Often, when the transitioning teacher assumes some of the general classroom duties, the community teacher is freed-up to spend some additional time with the discharged child. This in turn facilitates the establishment of a better relationship between the newly transitioned child and the community teacher in a shorter period of time than otherwise would have been possible.

Community consultation and training for outpatients is usually conducted in a very similar model to that described for transitioning inpatients, but such consultation cases also have many individualized modifications. Typically, the MMHI personnel will need to spend more time in the classroom initially with the community teacher to assess the child's needs as well as the teacher's training needs. Often the focus is primarily of a nature which teaches the child positive alternatives to nonattending and disruptive behaviors by teaching eye-contact, attention-to-task, and useful independent play skills.

Results to date indicate an extremely good response to the training model for both inpatient transitioning as well as community case consultation.

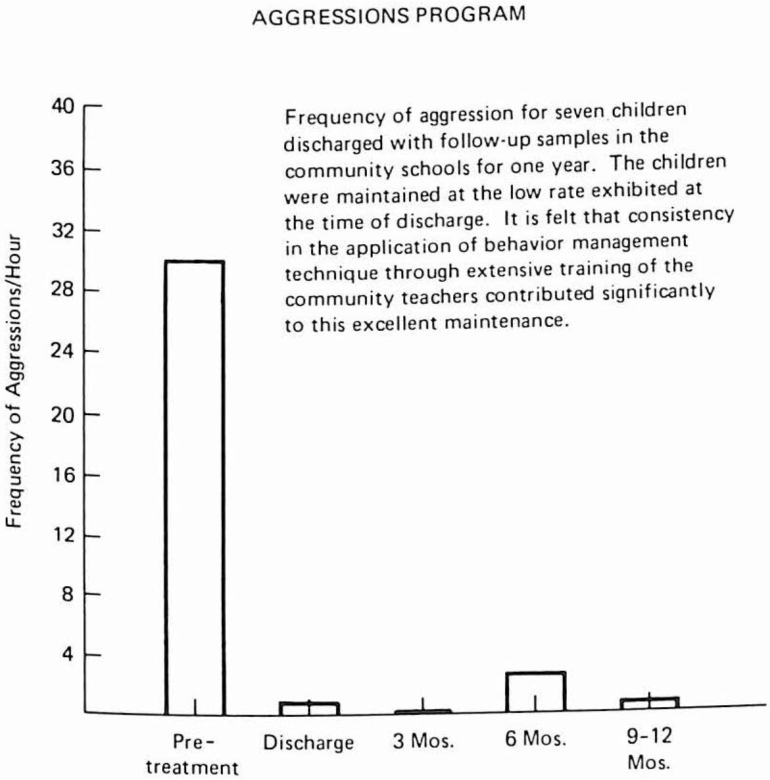
A sample of seven children discharged in the fall of 1975, where extensive 1-year follow-up data were obtained in 1976, reflected excellent maintenance. All of these children had referral problems with high rates of noncompliance, aggression, temper tantrums, and bizzare or stereotypic behaviors.

The data collection procedure used employs an event recording system. The data are taken in 20-minute time samples in the classroom on a single data sheet. The child is observed for compliance rate, aggressions, temper tantrums, and bizarre mannerisms with the frequency of each behavior recorded. Figures 6-4, 6-5, 6-6, and 6-7 illustrate the rate per hour of noncompliance, aggressions,



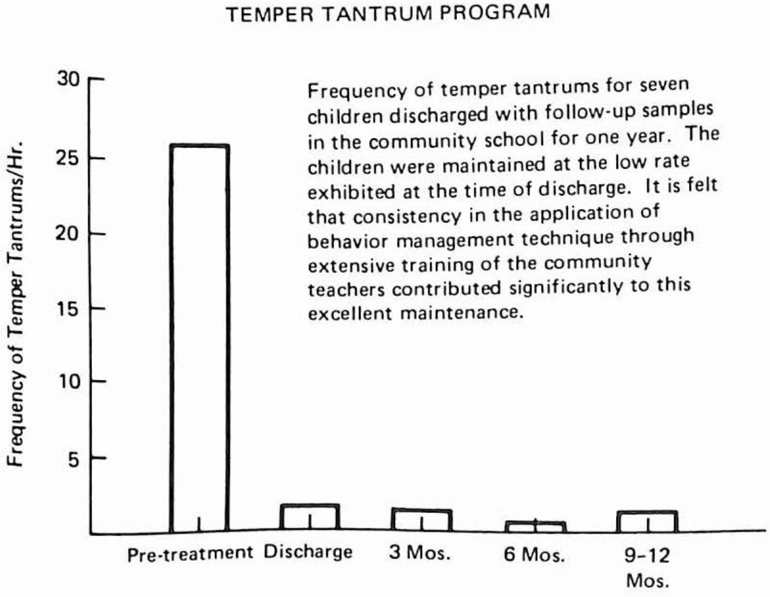
Noncompliance rate for seven children discharged with follow-up samples in the community schools for one year. The children were maintained at the low rate exhibited at the time of discharge. It is felt that consistency in the application of behavior management technique through extensive training of the community teachers contributed significantly to this excellent maintenance.

Figure 6-4. School transitioning child data compliance program.



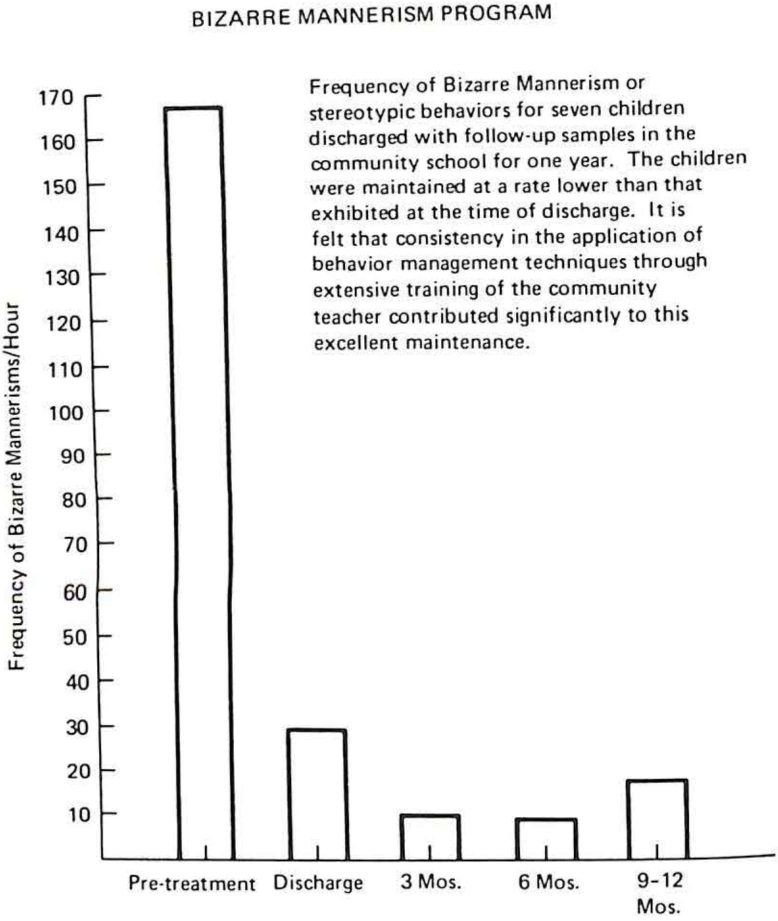
Frequency of aggression for seven children discharged with follow-up samples in the community schools for one year. The children were maintained at the low rate exhibited at the time of discharge. It is felt that consistency in the application of behavior management technique through extensive training of the community teachers contributed significantly to this excellent maintenance.

Figure 6-5. School transitioning child data aggressions program.



Frequency of temper tantrums for seven children discharged with follow-up samples in the community school for one year. The children were maintained at the low rate exhibited at the time of discharge. It is felt that consistency in the application of behavior management technique through extensive training of the community teachers contributed significantly to this excellent maintenance.

Figure 6-6. School transitioning child data temper tantrum program.



Frequency of Bizarre Mannerism or stereotypic behaviors for seven children discharged with follow-up samples in the community school for one year. The children were maintained at a rate lower than that exhibited at the time of discharge. It is felt that consistency in the application of behavior management techniques through extensive training of the community teacher contributed significantly to this excellent maintenance.

Figure 6-7. School transitioning child data bizarre mannerism program.

temper tantrums, and bizarre mannerisms, respectively. Samples compared are the baseline 1 week after admission, the unit data 1 week prior to discharge, and the 3 months, 6 months, and 12 months follow-ups taken after discharge in the community classrooms.

Results of a one-way ANOVA (Table 6-1) computed across sampling periods indicate that 1 year following transition into the community school systems the children had significantly maintained the behavioral gains which were established during the inpatient treatment phase of the program, thus indicating excellent generalization of the program and successful reintegration of the children into the public schools. The strategy of training community teachers on the specialized programs has made the adjustment to the new classroom environment easier for both the child and the teacher.

Table 6-1. Results of ANOVA for child behaviors in community schools 1 year following discharge.

Behaviors	F Value
Compliance	15.12^a
Aggression	2.83^a
Temper tantrums	6.78^a
Bizarre mannerisms	4.6^b

^{a}F .01 (4,24) = 4.72

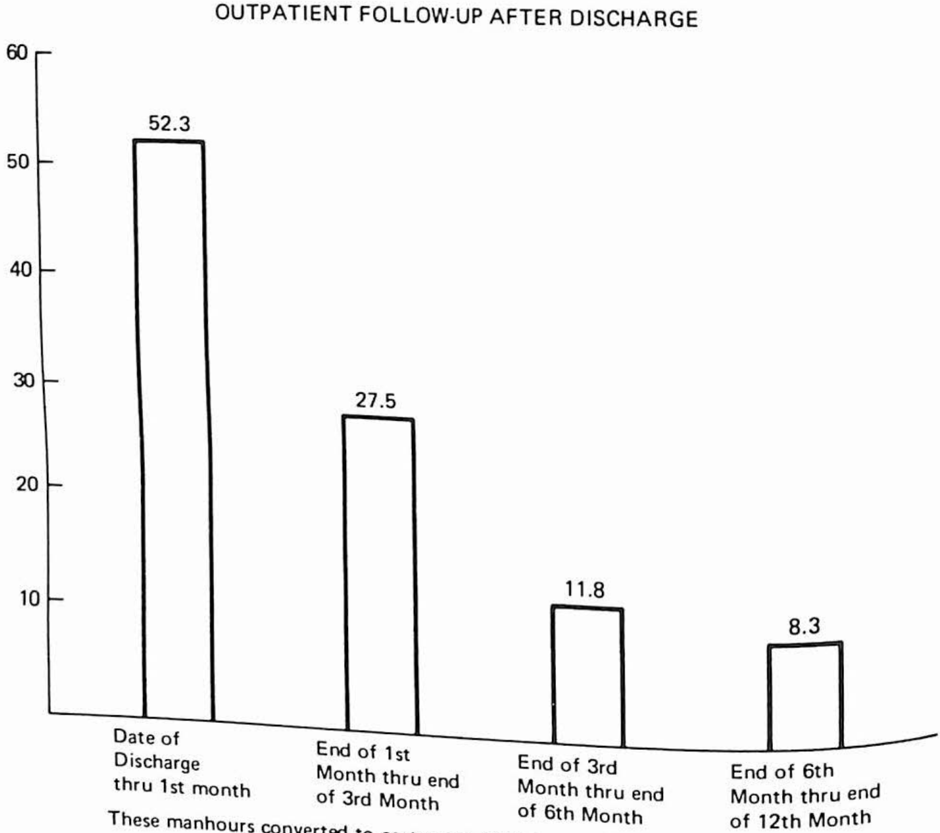
^{b}F .05 (4,24) = 2.78

Community teachers and administrators have been surprised with their own success in managing what were previously considered to be such difficult children. Of the 25 children transitioned to community schools after a period of residential treatment, none have been referred back to institutional care because of an inability to manage or educate them. Of the aditional 26 community case consultations and trainings utilizing a nonresidential model, two have required later residential care. This training model allows for those in a rural county, where there may only be one child with such specialized needs, to be able to develop the skills and expertise necessary for managing the child within close proximity to his home. Through the implementation of this model, psychotic children can be reintegrated and/or maintained in the community, thus preventing such children from serving extended periods of their lives in institutions. As a result of the PPNIC placing children back in their local communities, there are now 22 classrooms in the state of wisconsin that have trained teachers to competently manage such children.

It should also be noted that the cost computations for providing training following discharge are relatively minimal when compared to extended residential care. Figure 6-8 illustrates the outpatient follow-up staff hours after discharge.

These manhours converted to cost equal $682.00 per child for follow-up for 1 year; this, when compared to $102 per day for residential treatment, obviously indicates quite a savings. Even after one adds in the cost for special education teachers and educational costs in the community, the community treatment remains significantly less costly than the $37,000 annual cost for residential care.

It should be pointed out that although the success rate has been extremely good, the process of getting schools to willingly participate in a rather assertive behavior training program has been far from easy. Most school systems are cooperative but must be convinced that their resources are sincerely adequate to meet the child's needs. There are rarely problems if the child has done so well at PPNIC that he requires no negative contingencies. While the project does utilize



These manhours converted to cost equal $682.00 per child for follow-up for 1 year.

Figure 6–8. Cost computations for post-discharge training.

a time-out shaping program that uses a quiet room as a back-up, most children are under fair self management and take their time-outs sitting on the floor. However, if a child continues to need a quiet room back-up, this is frequently where the project requires special public relation skills, utilizing all available support systems, including the State Department of Public Instruction. Parents also become trained in child advocacy as the following case example illustrates. Fortunately, in Wisconsin, this family had a variety of resources to assist them in their struggles. The project makes special efforts to inform parents of their rights to receive an education for their child under Chapter 115 of the Wisconsin Statutes. They are also encouraged to join with other families experiencing similar difficulties and thereby develop a peer group. As mentioned earlier, most transitionings go well and as described. This case illustrates how the project supported the family in effectively influencing the school board of their district to insist on a back-up quiet room for their son because it had been effective in treating his disruptive behavior and he had not been shaped off its complete use by the time of discharge. The following is the mother's accounting of her experience with her son after she had been assured that the school system would cooperate in providing educational services for her child. However, when the time came for the school to deliver on that commitment, the family experienced much difficulty and eventually requested a multidisciplinary team (M-Team) evaluation. They stated that they wanted to be present with a psychologist, social worker, speech pathologist, a learning disabilities diagnostic teacher, a behavioral disabilities diagnostic teacher, and a staff member from PPNIC who had been involved in the treatment. This M-Team was requested because the parents were unsure that an M-Team had been held on their son and also the parents had not been invited to attend or participate. In addition, the parents requested copies of all of their son's records. Since there was a disagreement between the school and family, the parents felt that the situation could be defined as a crisis and requested that the M-Team be completed in 2 weeks. This process and conflict brought forth in the parents the following diagram which they showed to the school and PPNIC staff regarding the history of their son:

Raymond Paul McIver
Born: March 15, 1973
Address: 515 W. Seno Dr.
Mark, Wisconsin
Phone: 717-8293
Family Members
Father: Ronald J. McIver
Mother: Mary A. McIver
Siblings: Jane age 16
Karen age 14
Jenny age 13
Mark age 11
Employment: Both parents run a private business and manage a grocery store.

The family had worked out elaborate arrangements to see that their son received continuous supervision from either the parents or siblings, during all parts of the day.

The mother wrote the following history of their son.

History of Raymond McIver Born 3-15-73
Developed normally until he was slightly over 2 years old.

At age 2½, he had no language, followed no directions, didn't seem to understand anything.

Took him to family doctor who referred him to Children's Hospital for evaluation which began in fall of 1975. They weren't sure whether or not he was autistic so they referred him to intensive daycare workshop center for further evaluation.

Evaluation at Center was interrupted for a few weeks when in March 1976, Ray was hospitalized with 1st and 2nd degree burns (he had spilled cup of coffee on himself). He was hospitalized for eight days but we gave him a few weeks recuperation before evaluation was resumed.

Results of Workshop Center evaluation given to us in summer of 1976: They didn't consider Ray truly autistic, though he had some characteristics of an autistic child. Because of those characteristics some medical people might consider him autistic (autism not that clearly defined we were told) but by standards of Daycare Workshop he wasn't truly autistic—possibly autistic-like. The Center didn't have any program that would be appropriate for Ray.

Dr. Beck from the Workshop Center talked to someone in the Special Ed. Dept. and he felt that the Early Childhood program in Lincoln school might be appropriate placement for Ray in September 1976.

When Ray started school at Lincoln in September 1976, this is what he was like:

appeared to understand nothing
followed no directions
was not affectionate
poor eye contact
didn't know our names or names of any objects
was non-verbal
ate primarily with fingers
not toilet trained
didn't attempt to dress or undress himself
played in-appropriately with things (spinning, twirling, gazing)
prone to temper tantrums especially when interrupted
prone to self abuse—banging head—biting hands, wrists

We didn't know how to discipline him; wouldn't spank him or deprive him of things as punishment, because he wouldn't have been able to understand why we were doing it. (HE STILL WOULDN'T BE ABLE TO UNDERSTAND THAT TYPE OF DISCIPLINE)

Basically, he lived in his own world and didn't like intruders.

September, 1976 Ray started school—Early Childhood Program—Lincoln School.

October, 1976 Lincoln teachers called in staff from Mendota's PROGRAM FOR PSYCHOTIC AND NEUROLOGICALLY IMPAIRED CHILDREN unit, also called PPNIC and the Autistic Unit, to observe Ray in classroom. We met them, learned about their program, were invited to visit Autistic Unit.

October, 1976 Lincoln teachers began couple of programs for Ray suggested by Mendota staff.

November, 1976 The two Lincoln teachers and Mary visited Autistic Unit.

January, 1977 Ron and Mary visited Autistic Unit and made arrangements to place Ray there because it was much more intensive program than could be offered at community level and parents were very involved in the program which was also important to us.

February, 1977 Ray's accomplishments after five months of school at Lincoln: He understood two commands: "sit" and "stand"; he'd usually come running when his name was called; eye contact improved slightly. All other problems remained the same.

February 15, 1977 Ray entered Mendota's Autistic Unit; he came home every weekend at which time we took data and returned it to Mendota; we started parent training sessions held approximately every two weeks then (sometimes siblings were included in these sessions)

May, 1977 Ray had begun to repeat some words when prompted; learning to dress and undress; use fork and spoon; understood several additional directions; he receives one minute sitting Time Out for in-appropriate behavior with two minute Quiet Room back-up if he fails Time Out. Possible permanent release date from Mendota set for fall 1977.

Late Summer, 1977 Ray continues good progress at Mendota but it is apparent to Mendota Staff that our weekend data is no longer comparable to theirs. More home training sessions were set to determine the problem in the home. After several home training sessions, it was determined that our Quiet Room was ineffective and we needed the same type of QR that Mendota used. (We'd been using behind a door or ventilated closet)

October 26, 1977 Ray had bilateral hernia, hydrocele operation at University Hospital–Madison. We gave him couple of weeks to recuperate fully, then brought in new QR - same as Mendota used. This proved very effective - Time Out's, QR's and severity of Temper Tantrums decreased to same level as Mendota's data.

By this time, Ray's permanent release date from Mendota had been pushed back to 1978, due to his operation, due to the problem we'd had at home and Christmas vacation.

January 10, 1978 Determined by Ear, Nose, Throat Clinic at University Hospital–Madison, that Ray needs adenoidectomy, myringotomy and possible tonsillectomy due to recurring ear infections, colds, etc. Operation scheduled for Feb. 9.

· *January 27, 1978* Final conference and progress report at Mendota (to include staff from local Spec. Ed.) cancelled due to blizzard. (Previous progress reports at Mendota which included parents, Mendota staff, representative from County Unified Services, and someone from Spec. Ed., had been held in May and August)

After cancellation of above conference, Dr. Dave McCormick (clinical psychologist at Mendota) phoned the Coordinator of Special Education and told him Ray's release date from Mendota was 3-3-78 and that Mendota's recommendation to the school were that Ray have: 1) full day of school, 2) full time teachers aide, 3) Quiet Room "box"
The Coordinator of Special Education agreed to these recommendations.

January 31 or February 1, 1978 The Coordinator of Special Education phoned me (Mary) and asked me to be interviewed by On-Site Team from Department of Public Instruction (Madison) at Student Services Offices the following week, to which I agreed.

Then we talked about Ray's release from Mendota on March 3 and his entering Lincoln school on March 6. When I asked about the teacher's aide, full day of school for Ray, the Coordinator of Special Education replied "yes" to each. Then I asked about the QR box and he replied: "I want to talk to you about that." I explained why that type was needed relating our experience at home using other type of QR. He agreed to it, then asked if Jim could build it for school. I said "no"–Jim isn't handy in that area, and we had ours built by a carpenter. I offered to get him building plans for QR from Mendota; also offered to let person building the one for school, to see ours at home.

February 7, 1978 I was interviewed by member of On-Site Team; interview ended by my being asked how co-operative was the school system. I replied that I was very pleased and explained about the three things Ray needed at Lincoln and that they'd all be promised to us.
Upon leaving interview, I gave the Coordinator of Special Education the QR building plans. He then told me that the hiring of teacher's aide for Ray hadn't gotten on school board agenda for that evening's meeting, but it would next time. He said something to the effect: No problem–or–don't worry.

February 9, 1978 Ray had adenoidectomy, tonsillectomy and myringotomy at University Hospital.

March 1, 1978 Mendota phoned–they'd just heard from the Director of Special Education that the teacher's aide hadn't been hired yet. He should have her hired and in classroom by March 8. We decided to keep Ray home from school until March 8. This would allow for Kathy Trebarne (transitioning teacher from Mendota) to be in Lincoln's classroom on March 8 and 9 and train teacher's aide there.

March 2 & 3, 1978 The two Lincoln teachers had two day training session at Mendota with Ray including use of QR. (Had teacher's aide been hired, she was supposed to have gone also) Teachers were trained by Kathy Trebarne.

March 3, 1978 Ray came home from Mendota permanently.

March 6, 1978 4:00 p.m. Phone call from Dr. McCormick–he'd heard from the Director of Special Education and we had a problem. Apparently the QR had been in the classroom and some parent or parents had seen it, objected to it, so it was dismantled.

8:00 p.m. The Director of Special Education called, first talked about the teacher's aide they were still trying to hire and then we got to the QR. He said he talked with Mr. Lengrin (Director of Spec. Ed. for a nearby county) and it was his opinion that QR was fine in an institution but not in a public school. The Director of Special Education wouldn't put it back in the classroom. I offered to talk to any parents explaining Ray's problem, why QR is used and how. Answer is still no.

March 7, 1978 Talked to Kathy Trebarne and Dave McCormick. Kathy asked if there'd been an M-Team Conference on Ray–I didn't even know what that was. She suggested I ask the Director of Special Education for an M-Team on Ray as soon as possible.

I phoned the Director of Special Education, asked for an M-Team as soon as possible and he said instead of that, he preferred a meeting with:

Mr. Lengrin
Superintendent Olson
John Andrews, Student Services Director for School District
Mendota Staff
Ron and Mary (Parents)

Meeting was set for Thursday 3-9 at Student Services Building. Meanwhile Ron and I decided not to send Ray to school on 3-8 or until this problem was cleared.

March 9, 1978 8:30 A.M. Meeting attended by: Ron and Mary, Dave McCormick and Kathy Trebarne from Mendota, Jay Wilson from the Unified Services (I asked her to come), Oliver Gulliakson (Director of Special Education), Jan Thomas, one of the teachers Ray would have at Lincoln, Mr. Lengrin. Mr. Andrews wasn't there due to some bargaining session he was involved in. Supt. Olson wasn't there and when I asked why, Oliver replied: "Mr. Andrews was supposed to take care of that."

The meeting proceeded with Dave, Kathy and Mary giving their presentations in that order.

School offered to use as QR, small corner sectioned off by dividers. We explained why that wouldn't work. We asked to have QR placed in room directly across hall from classroom (said room used for storage but speech teacher uses sectioned off area further in and off to side). If QR was placed right inside room near door, would be okay with us. Answer is NO—other kids in classroom would still know what is going on.

Kathy and I both offer to talk to other children's parents and explain Ray's situation and QR. We also explain that Ray won't need QR forever; eventually we'll be able to phase it out—but he needs it now.

Lengrin made a few remarks including the fact that it wasn't his decision to make. Oliver said it wasn't his decision to make either. (THEN WHY DID HE APPROVE OF IT IN THE FIRST PLACE, HAVE IT BUILT, AND PLACE IT IN THE CLASSROOM?) Oliver said it was Olson's decision to make. Oliver then phoned Olson (using phone in another room), (Olson was in his office, WHY WASN'T HE AT OUR MEETING?)—Oliver briefly explained the problem and then told us that Olson would decide later in the day after consulting with Lengrin. In the afternoon Oliver phoned to say that Olson's decision was "No" and that the matter would be taken up at closed school board meeting on 3-21. Letter from Olson to us, to follow. THE MEETING IN THE MORNING HAD BEEN POINTLESS. Before Olson's decision, I had talked to Ann Keller from Department of Public Instruction in Madison and told her what was happening. She asked if there'd been an M-Team on Ray—I said no. Said she'd phone me the next day. Teacher's aide hired in the afternoon.

March 10, 1978 Teacher's aide went to Mendota to be trained by Kathy Trebarne; training included use of QR.

Ann Keller phoned—she'd talked to Oliver and asked him if there'd been an M-Team on Ray. His reply was: yes—recently. I told her that if they had one, we didn't know anything about it. Ann told me she was sending letter to school board explaining that QR is sometimes used in public schools.

I went to Student Services and asked for copies of Ray's file. Copies were made for me, but Oliver said that John Gibbons (school psychologist) wasn't in the building and it was possible that he might have some of Ray's papers. Oliver said he'd phone me Monday to let me know whether or not I had all of the papers.

(I AM TYPING THIS ON MONDAY, MARCH 20 at 10:30 A.M. AND I STILL HAVEN'T HEARD FROM OLIVER—SO I STILL DON'T KNOW WHETHER OR NOT I HAVE ALL OF RAY'S PAPERS)

We receive letter from Olson and I feel it is very negative. Sounds like Lengrin talking in it (QR fine in institution but not in school) and Oliver (not wanting it in adjoining room). I feel any neutral person reading this letter would be quite biased against QR by the time they finished reading the letter. I hope copies of the letter weren't sent to anyone—especially school board members.

March 11, 1978 I mail copies of Olson's letter to Dave McCormick, Ann Keller and Jan Thomas of the Human Services Board.

March 13, 1978 I talk to Ann Keller—she is requesting Ray's records. By this time I have also talked to Barbara Hoffman, Child Advocate, Joyce Geir, Child Advocate, and Wisconsin Council for Advocacy. They are very informative and supportive. One of them tells me that the School District came out with flying colors on that on-site interview I was involved in!

March 14, 1978 Ron and Mary talk to Attorney John Dexter on the phone. We feel that we need legal representation at the meeting on 3-21. This has turned into such a mess, that we need an attorney who is very knowledgeable in this area. We want him to state at said meeting, the rights that Ray has provided by law; ask any questions that should be asked and advise us, if necessary, as the meeting progresses. Recurring questions to me:
Why weren't proper procedures followed by the School District for Ray, including an M-Team conference?
If the M-Team was held, as Oliver stated to Ann Keller, why weren't we ever notified?
Are proper procedures followed for other children entering the special ed. program—and if so, Why weren't they followed for Ray?
THIS WAS SUPPOSED TO HAVE BEEN A SMOOTH, ORDERLY TRANSITION FOR RAY FROM MENDOTA TO HOME AND LINCOLN SCHOOL. IT HAS BEEN ANYTHING BUT THAT. I DO NOT BELIEVE THE SCHOOL DISTRICT HAS ACTED RESPONSIBLY OR IN GOOD FAITH. THE QR DECISION SHOULD HAVE BEEN MADE BY THE PROPER RESPONSIBLE PARTY IN THE FIRST PLACE AND THIS COULD HAVE ALL BEEN SETTLED BEFORE RAY CAME HOME. NOW WE ARE IN A TENSION FILLED CRISIS SITUATION—ALL AT RAY'S EXPENSE.

RAY as of March 16, 1978
Understands and follows quite a few simple directions:
Is very compliant to directions he understands
Very affectionate and often he initiates the affection
Eye Contact much better
Knows names of family members (though he doesn't say them spontaneously)
Knows names of many objects and his favorite foods and asks for such items using the name of the item
Repeats two or three word phrases after us at times
Eats appropriately with spoon and fork
Dresses and undresses himself with a little help
Recognizes numbers one thru ten

Recognizes some letters of the alphabet
Beginning to communicate "hurt" if its a visible one
Just started to communicate "broken" spontaneously (i.e. broken toy, etc.)

Needless to say, one can sense the clear frustration and anger the family was feeling in dealing with the school—all of which had a legitimate base. While Mary's accounting may appear extensive, the PPNIC staff attempt to teach parents to advocate for their child. The crisis described was worked out between the school and family with PPNIC being as supportive as possible in giving the parents access to the Wisconsin Coalition for Advocacy and the State Department of Public Education. The transitioning teacher wrote the following 6-week follow-up report.

> Ray's progress and success of transition has been followed for six weeks following placement in the Early Childhood Program at Lincoln School, by weekly visits of Mendota Mental Health Institute staff. Additional input and consultation services have been provided during these visits. Likewise, behavioral counts have been taken on both teacher and child and indicate that Ray's programming is being maintained with excellent implementation by the Lincoln School staff. This is further reflected in the behavioral sample taken on 5-9-78. This data indicated that Ray had 88 percent compliant, displayed nine instances of temper tantrums, five aggressions, and 14 treated bizarre mannerisms. Also that same time period he had 24 time-outs and seven quiet rooms with a 71 percent successful time-outs. These data points are comparable to Ray's discharge data which indicates that Ray is being maintained successfully within his public school setting.
>
> Ray's language skills continue to grow with more spontaneous use of two word utterances. He is now being involved in more group activities with the other children.
>
> As stated in the M-Team recommendations other children have been monitored for possible adverse effects of the quiet room. Behaviors that have been looked for specifically are:
>
> 1. Preoccupation with QR box (constantly staring at, touching, looking in).
> 2. Crying when Ray is put in QR.
> 3. Over attention to QR during group instruction or work time.
> 4. Aggressive reactions to other kids during Ray's QR times.
> 5. Persistent questioning behavior about QR.
> 6. Withdrawal or intentional avoidance of QR and area around it.
> 7. Imitative behavior during free time (e.g. putting dolls in "boxes").
> 8. Reports of children talking about QR at home persistently.

9. Negative expressions about Ray and QR.
10. Other negative reactions to QR not identified above.

Reactions noted by Lincoln teachers and Mendota staff are usually children putting their hands over ears when Ray screams while in QR. The teachers have noted that other boys try to "egg him on." One child expressed a negative attitude toward Ray, but the same child also expressed that attitude toward another "autistic'like" child that was not being treated with a quiet room back-up. One child was pulled from the project by his parents because the QR box was in the room. The teachers have indicated that there were other problems involved in that case. Another child asked frequently about Ray's timeouts and the "box." This child also asked questions about other aspects of other kids programs and would tell this observer when Ray should get a timeout and why. The other behaviors listed were not noted and it appears that the children have accepted Ray's program and most often do not pay attention when Ray needs a QR.

In summary, Ray's transition has gone smoothly and he appears to be doing very well in the Lincoln setting.

Fortunately, most school transitionings are far less complicated, but the authors feel that this particular incident illustrates the complexities of transitioning very difficult children back home. It also illustrates the necessary role parents must assume if they are to maximize educational opportunities for any given child. The need for a complex support system if such community programming is to be successful becomes obvious. As Ms. Treharne's note illustrates, Ray did very well after 6 weeks in the classroom. The school system was also able to see Ray's continuous development, and soon a complementary and friendly relationship developed between the PPNIC staff and the administration of the school district.

Fortunately, in this case, Ray's new community teachers were already behind the parents and PPNIC staff as the transitioning progressed without any further negative incident. Again, the case illustrates the need for a "total system" model if one is to achieve success. Working with only one component of the system, such as the school administrator, without the parents, PPNIC staff, Child Advocacy staff, and Department of Public Instruction would probably have created a failure situation for Ray with the option being extended residential care. Fortunately, the system worked well for Ray, with much effort from many friends.

SUMMARY

A Community Teacher Training Project was developed at the Mendota Mental Health Institute to facilitate the generalization and maintenance of skills developed in psychotic children who were returned to community living after short-term residential treatment. This model was used to train community teachers of children who were discharged from the Program for Psychotic and Neurologically Impaired Children. The training was part of an effort to increase the likelihood of continued educational growth in home, especially in rural communities where teachers were often not skilled or tained in the management of severely disturbed children. This model was adapted for case consultation and community teacher training in an effort to *prevent* institutionalization of young psychotic children who had not received treatment at the Institute. The training model is described with results indicating high success. Graphs illustrate these results in detail. A case example is utilized to further illustrate the problems parents may have in getting assistance in returning their children to the local community schools. This case illustrates well the need for a "total systems" approach.

7

Issues in Community Intervention

Before addressing the many issues involved in community intervention, it may be helpful for the reader to become familiar with the philosophical basis behind the State of Wisconsin Statutes and its relationship to the mission of the Division of Community Services, including Mendota Mental Health Institute. In November, 1977, the Division of Community Services presented a mission statement which summarized the general roles agencies should play in providing services to the people of Wisconsin. It reads as follows:

> The Division of Community Services and County Boards have the statutory responsibility to work together with community agencies to develop and put into operation a coordinated human services system through which quality services are available to Wisconsin citizens in their communities.
>
> The purpose of this state and county human services system is to help families and individuals in their unique struggles to satisfy their basic living and psychological needs.
>
> The services shall be designed to help individuals in their "struggles" as heightened by problems associated with their age, home or living situation, mental and physical condition, and social situation.
>
> The services shall be available to all Wisconsin citizens. They shall be offered in graduate levels of intensity and specialization so that each child, adult or family receives help appropriate to their present, individual situation. The services shall be delivered in a humane way that shows respect for the client as an individual and allows the client to retain respect for her/himself.
>
> Together state and county shall operate the system and provide the services

in the most efficient and economical way possible, mindful that they also have a responsibility to individual citizens as taxpayers.

Given the gravity of the responsibilities assigned, it is with a "sense of partnership" that the Division of Community Services and County Boards can best proceed to develop and operate a coordinated, statewide human services system.

The human services system shall be built on certain principles which shall apply to the delivery of services or information to all individuals—clients and non-clients. It is important that all who work within the system at the state or county level and those who join the system in the delivery of services know and endorse these principles. They are:

- To help individuals enhance their self-sufficiency and make the most of their capabilities
- To strengthen and support both the traditional family and the programs based on a family concept, i.e., adoption, permanent family care, adult foster care, etc.
- To emphasize and promote an attitude of wellness and positive living practices
- To respond promptly and courteously to all requests for services or information
- To actively help individuals locate and obtain appropriate services or information
- To develop a service plan with each client and/or family based on his or her specific needs and personal situation
- To provide each client with a stable, dependable contact—a person to assist him or her within the service network at all times
- To insure the least possible disruption to the individual's normal routines and daily living situation
- To insure that persons who require living situations other than their own homes are placed in an environment most conducive to their growth as individuals
- To expedite the return to home or community for clients who had to go elsewhere to receive services appropriate to their particular needs

These principles apply to the delivery of services to all people without making any distinction because of age, sex, race, religion, mental or physical condition, or ability to pay.

Together state and county can provide a human system which offers to children, adults and families a broad range of specialized human services in child care and aging, alcoholism and other drug abuse, developmental disabilities, and mental health. It can offer to all clients day care and respite care, foster care and group living, nutrition and home services, and protective services. It

> can also offer to all citizens services and information which can prevent developmental disabilities, and promote mental health and good living practices . . . and it can offer more.
>
> Wisconsin statutes mandate the general service area to be provided within the system. The statutes also delineate the responsibilities of the Department of Health and Social Services, as assigned to the Division of Community Services, and of the County Boards, as assigned to County Social Services Departments and Community Services Programs, in providing the services.
>
> In general terms, the Division of Community Services is charged with the responsibility to provide overall, statewide direction for the community-based human services system. As written in the statutes, the state is to review and approve community programs and plans, administer state funds, and assure that services are in accord with standards it must establish and that they are equally accessible to people throughout the state.
>
> Also in general terms, the County Boards are charged with the responsibility to deliver all of the human services as needed "to help families and individuals in their unique struggles to satisfy their basic living and psychological needs." This means the counties are to assess the needs of citizens within their jurisdiction, plan and budget for services, and provide directly or arrange for the delivery of services through a variety of public, private, and voluntary resources.
>
> State and county share some responsibilities. Both must make certain that services are of high quality, meet the needs for which they are intended, and are offered in a way that recognizes and preserves the dignity of the individual. The Division and the County Agencies must also bring additional funding sources into the system so that local programs can offer their citizens excellence and completeness in services above that which state funds can provide. Some additional funding sources are third party payments, united fund, and greater use of volunteers.

This mission statement is certainly a very ideal, service-oriented approach to meeting the special needs of clients throughout the state. It also very closely parallels the beliefs and work of the staff of the Project for Psychotic and Neurologically Impaired Children. They have developed a comprehensive community systems approach in meeting the needs of their clients and other special children throughout the state.

This chapter deals with the issues involved and methods used in basically two different kinds of community involvements. The first kind of involvement reviewed will be that which is necessary and beneficial to assure a smooth transition for a client directly involved with the project. This will include the systems approach and agency involvement in the referral process, course of treatment, discharge planning, and provision of services after the child returns to his home community. The second kind of community involvement discussed will include the systems approach used in working with agencies when no client is directly involved with the project. This will include setting up systems to prevent residential placement for clients who can grow and develop in less restrictive environments; working with facilities in a consultation role so that they can employ techniques and approaches found successful by the project staff; and other methods of assisting communities to develop a systems approach in providing services to their clients.

Before beginning to describe the methods used to employ the services of community agencies, the authors feel it is necessary to briefly reiterate some of their perspectives regarding the psychotic or neurologically impaired child's role in the community structure. Most importantly, the authors believe that the child should remain in a home and community setting if at all possible, to grow, learn, and develop. Modification in the home or community setting may be necessary in order to enable the child to remain a part of society. Such supports as financial assistance to meet the costs of medical care, temporary child care, or special transportation services may be needed. Support systems, including knowledgeable and helpful family members, neighbors, or friends, are almost always needed to give the family relief at times and assistance during difficult situations. Specific instructions regarding child management techniques are needed for both the immediate family and involved school personnel. And finally, community agency involvement, support, and advocacy are necessary to ensure that proper services are developed, funded, and implemented to meet the needs of special children in the community.

However, the project staff have found that in nearly all cases, it is possible to provide these support systems. The struggles are often times extremely difficult; the barriers to obtaining services may seem insurmountable; the time involved in negotiating and establishing such support systems is extensive; and in some cases, the child may need to be temporarily removed from the home and community setting in order for him to receive immediate remedial treatment.

In cases where the child is temporarily removed from the community, the authors feel it is extremely important for the child to return to his home and community for frequent visits. If this is impossible because of severe family problems or in some cases a lack of a family system, every effort should be made for the child to have frequent visits, preferably weekly, to a home situation or community setting. It is important for psychotic or neurologically impaired children to have normal learning and normal living experiences.

With this emphasis on attempting to keep the child in his home and community and only using temporary residential placement, with frequent community contacts when necessary, it is obvious that the authors view the family and community systems as the key systems in a child's life.

AGENCY/SYSTEMS INVOLVEMENT IN PROVIDING SERVICES TO A CLIENT

The reader may question why one would work diligently to develop or improve the community agency involvement in a situation where the child is temporarily admitted to a residential program such as the Project for Psychotic and Neurologically Impaired Children. After reading the previous two chapters regarding family and school involvement, one might feel that the child does not need additional services. In fact, additional services might confuse the issue and make the provision of a consistent therapeutic environment more cumbersome; however, there are many sound reasons for involving various community agencies.

First of all, there are numerous services a community agency can provide a child or family that a residential treatment program or school system are unable to provide. Some examples of these may include financial assistance, transportation services, respite care, counseling for problems unrelated to the specific child involved with the residential program, or coordination of several services for a multiproblem family.

Secondly, the community agencies are responsible for determining the needs of their constituents and then planning, developing, and funding the appropriate services. Group home services, recreational programs, and work programs for developmentally delayed adults need the support and funding from the community agencies.

Thirdly, one should not ignore the fact that most psychotic or neurologically impaired children will need services from their community, county, or state during much of their lifetime. Mental health or social service agencies will be involved with these clients for extended periods of time.

In addition, after a child has been discharged from the PPNIC for several years and has grown and developed, his needs will change, and consequently the project staff will be less of an asset to the child and his family. They would need to intervene and reassess the child before they could skillfully make accurate recommendations. The child will also lose the support of the school system when he becomes a young adult and it no longer provides him with services.

These are just some of the reasons why the authors feel it is imperative to develop a very positive, early relationship between the family and the community agencies for each child involved in the residential program.

Methods of Involving Agencies During the Referral Process

The project staff initiate community agency involvement long before a child is admitted to the residential program. Typically the social worker from the PPNIC works closely with the Human Services Board coordinator from the child's county of residence. The needs of the child, the family, and the community are thoroughly assessed throughout the process to ensure that the child's needs cannot be presently met within the community system. In addition, the PPNIC program and the services it can provide are shared with the Human Services Board coordinator. The coordinator is encouraged to visit the PPNIC prior to referring the child so that he can thoroughly understand the nature of the program and the intensity of community involvement and become aware of what kinds of services may be needed when the child returns to the community.

Discharge planning begins during this referral process. Any services that the family feels they may need or the project staff anticipate may be needed are discussed prior to admission. The feasibility of obtaining these services is investigated by the project staff so that they have an understanding of what must be done during the period of residential placement in order to provide the child and family with a comprehensive delivery of services.

The following example may illustrate the type of discharge planning and involvement of community agencies that begins prior to admission.

> Staci, an eight year old, neurologically impaired child was referred for admission by the Human Services Board of her county residence. She had been temporarily expelled from school because of severe behavior problems. Throughout the referral process, the project social worker learned that Staci's parents were highly educated professionals who had been attempting to advocate for a specific school program for their daughter. In addition, Staci's parents had developed a parent group which had made several demands of the school board and superintendent of schools. The relationship between Staci's parents and the school board had become extremely hostile and the superintendent of schools was not on speaking terms with Staci's parents. Staci's parents had also begun a legal action against the school system claiming that their daughter was not receiving appropriate educational services. Staci's parents had no intention of leaving the community; the school board would not be up for re-election for two years; and the superintendent had five more years until retirement.
>
> The assessment of Staci indicated that she really did need a short term remedial program at the Institute. However, the project social worker knew that no matter how well Staci progressed at the Institute, and even with the extensive family training, Staci's transition to a community classroom would be a tremendous problem. Although the school system would be required to provide an educational program, their cooperation with the PPNIC staff and family would be necessary to provide Staci with a good consistent treatment program.
>
> After much discussion with the County Human Services Board coordinator, family and project staff, it was decided that Staci would be admitted to the residential program. It was also decided that a social worker from the Human Services Board would attend every parent training session and be thoroughly

trained to implement and understand all of Staci's behavioral, academic and language programs; would visit the family during Staci's home visit in order to have some time to practice implementing the treatment programs; would assist the family in learning the child management techniques as well as give them support; would be responsible for the role of child advocate in dealing with the school system; would assist the project staff in securing an appropriate educational placement; and would frequently visit Staci in her community classroom after her return to the community. It was further decided that if this social worker left her position with the Human Services Board, another staff member would be trained to carry out her role with the PPNIC staff and Staci's family. It should be noted that some of these arrangements were made because Staci's family lived over 175 miles from the Institute and more frequent school visits and meetings with the school system than normally are needed were anticipated.

Although this case may seem unusual, and in some respects it was very complex, arrangements for providing services after the child returns to the community are always initiated and investigated prior to admission. In addition, community services may be needed during the child's placement at the Institute in order for some families to participate in the treatment process. In one situation, a single parent family was threatened with the financial loss of her "aid to families of dependent children" budget if her son was admitted to the project. She would have been unable to pay her rent and buy necessities without this money. Although she definitely wanted her child admitted to the project and she was unable to manage him at home, the system was forcing her to keep her child at home in order for her to have money for room and board. In this situation, the PPNIC staff was able to get the County Department of Social Services to secure additional funding for the mother during the time the child was involved with the PPNIC residential program.

Because children are referred to the project from counties throughout the state, many families are faced with tremendous transportation problems. As discussed in one earlier chapter, the children go home either every weekend or every other weekend for visits with their families. For some parents, this may require 9 or 10 hours of driving on a Thursday or Friday plus again on Sunday to return the child. In addition, such lengthy trips shorten the time the family has with their child in their home as well as puts an additional emotional strain on them. This one requirement could discourage or prevent families from getting the services their child needs. In such cases, arrangements are usually made for a hired driver to transport the child on Sundays back to the Institute. Such arrangements are facilitated by the PPNIC staff and provided and funded by the school district, Department of Social Services, or County Human Services Board.

In one situation, three school districts shared the expenses of hiring a driver and renting a van to transport three children from the northern counties to the Institute every other Sunday for over a year. Establishing such arrangements is often a very complex, time-consuming task. In addition, it requires that the project staff be flexible in working out parent training schedules, home visits, and parent conferences to accommodate the special needs of these families. However, it often is the very practical problems such as transportation, budgets, or child care that put additional pressures on families and make it difficult for them to benefit from specialized services.

Other work with community agencies that occurs during the referral process consists of initially learning about all the agencies that have been involved with the child or may need to be involved in the future. Many residentially based programs only initiate contact with community agencies at the time that they want to plan the discharge and return the child. However, the PPNIC staff have found that involving as many relevant agencies as possible during the referral process and course of treatment is most beneficial to the child and family. Agency personnel are often most willing to make commitments when the child is residing in the community, and the agencies are frustrated with their inabilities to provide services. The saying "out of sight, out of mind" is in effect what happens with some tremendously overworked agency personnel. Therefore, gaining their cooperation prior to removing the child from the community is easier than waiting until the child has been in the residential program for several months.

Encouraging the agency personnel to play an active role throughout the referral process and course of treatment also has many advantages. When the agency personnel visit the program and see and hear about the intensity of the programming the child will receive, they do acquire a better understanding of the needs of the child and the types of services he may need when he returns to the community. The agency personnel can then have several months to plan, develop, and obtain funding for services the child may need when he returns home. This prevents the occurrence of last minute crisis situations where services are not available or staff shortages prevent implementation.

Referral agencies, such as evaluation centers, diagnostic programs, or other residential programs, play a different role during the referral process. Generally, they will not be involved with the child when he returns to the community nor will they be providing services to him in the future. However, the project staff have encouraged such referral agencies to remain involved with the child, to be aware of treatment programming, and to be updated on the child's progress. Such information will assist the referral agencies in understanding more thoroughly the PPNIC program as well as the progress that can be obtained. As these agencies learn about other children that need intensive programming, they can more accurately explain the PPNIC services and refer children that can benefit from it. Caution must be used, however, in assuring that such referral agencies become aware of all services available and all kinds of children that can be served so that they do not acquire a very narrow understanding of the program based on the one child they have referred.

Before discussing the maintenance of community agency involvement during the course of the child's treatment, it should be noted that agreements between the project staff and various community agencies are formalized in letters or memos, whenever possible. This provides a written explanation of the roles agencies will play that can be used to refresh people's memories at a later date or orient new staff members in cases of staff turnover. Such a written agreement also facilitates the process of clearly delineating agency responsibilities.

Methods of Maintaining Community Involvement During the Course of Treatment

Once a child has been admitted to the residential aspect of the project, the "out of sight, out of mind" approach can occur if the community agencies are not encouraged to be involved in the treatment process. The project staff must continue to be assertive in maintaining agency involvement. There are several things the project staff typically do to maintain agency involvement. Basically, the approach is to initiate communication on a regularly scheduled basis as well as whenever needed. By regularly scheduling one's communications with the community agencies, such progress reports or meetings are not put off to a later date. On the first of each month a progress report for every child in the residential program is written. Copies of this report are sent to the involved community agencies. This provides the agencies with a regular reminder of the child's treatment programs, progress, and needs for future services. This is a very simple method of making sure that some communication occurs with every community agency every month.

In addition, every 3 months an extensive evaluation and planning conference is held regarding each child. Rather than waiting until the child has been in the residential program for 2 or 3 months and then attempting to schedule and coordinate a time for such a conference, a tentative conference date is established at the time of admission. Prior to admission, the project staff negotiate with the community agencies regarding their roles during treatment as well as which community staff person or persons should be involved in the evaluation and planning conferences.

The evaluation and planning conferences consist of observing the child in his classroom setting through a one way mirror, discussing his gains towards his treatment goals, and renegotiating treatment goals. As mentioned in an earlier chapter, the parents are also involved in these conferences. The community agency personnel are encouraged to play a very active role in the planning aspect of the conference. Specific skills that would assist the child in adjusting to a community classroom as well as anything the project staff could do to help the community agencies develop appropriate services are discussed. For example, sometimes a child may need to go through a lunch line and carry a cafeteria tray in his community school. This kind of skill would be discussed and plans made to teach the child this sequence prior to discharge. On other occasions, the community agencies may need supportive documentation to secure funding for a classroom aide or mother's helper. Discussing such problems several months prior to needing these services once again eliminates crisis situations at the time of the child's return to the community.

Other unscheduled contacts with the community agencies are an important part of maintaining their involvement. Because the project staff have so much contact with the families during the treatment process, they often learn about changes in the family constellation, plans to move into different school districts, or changes that may affect their need for services before the community agency personnel do. Such information is discussed with the relevant agency personnel immediately so that they can be knowledgeable about the situation. In more complex situations, the project staff may be initiating phone calls every week to agency personnel in order to keep them abreast of the needs of the child and family.

Although agency personnel are very aware of the needs of the child, his disruptive behaviors, and management problems at the time of admission, in some cases they tend to forget how difficult the child was to manage after he has been involved with the program for several months. The project staff typically videotape the child at the time of admission, either at the project, home, or community classroom. This videotape is often shown at one of the evaluation and planning conferences. It very clearly depicts the characteristics of the child, his disruptive behavior, and skill level so that one can easily be reminded of the progress a child has made. It should be noted that baseline data are taken for all treatment programs and are discussed at the evaluation and planning conferences. However, the use of the videotape has been tremendously valuable in reminding staff, parents, and agency personnel of the child's characteristics prior to treatment.

It should be noted that regardless of what methods are used to maintain contact with community agency personnel, and encourage their continual positive involvement, the style in which one interacts with agency personnel will greatly influence their responsiveness. Condescending comments, directives, and lack of respect will only hinder the establishment of a good relationship. Tact is absolutely essential in trying to establish and maintain relationships. Even in the process of dealing with incompetent community professionals, good public relations are necessary to acquire the supportive services for the child and family.

In addition to being constantly aware of treating agency personnel with respect, it is also important to remain flexible in one's requests for services. It is important to sort out what services are essential to a family system and what services are desirable, but not necessary. By being considerate, accommodating, and flexible, one can often persuade a community agency to willingly provide even more services than initially agreed upon.

Finally, at the time of a child's return to the community, the agencies need to become even more involved with the child and family. Most agencies are very knowledgeable and skilled at providing certain specific services. They have had months of planning for the child's return and much assistance in securing the additional services needed. At this point, the agency personnel typically only need support and recognition for their efforts. Letters of appreciation, phone calls to express one's positive feelings, acknowledgments to a person's supervisor, and supportive recommendations, as simple as they may be, can be very beneficial in maintaining the involvement of community agencies. Such small gestures can be easily overlooked or forgotten as staff members get busy with other duties. However, they often are a catalyst in maintaining a positive relationship that one has spent months trying to develop.

The authors do not want to give the impression that the involvement of community resources is always a very simple positive experience. Rather, it can be a very difficult, troublesome, frustrating experience. In the situation referred to earlier, where Staci's parents were not on speaking terms with the school personnel, the project staff had to be very flexible and accommodating before the school personnel would even talk with the project staff. In some cases, supervisors of agencies need to become involved in order to get subordinates to cooperate. Incompetent agency personnel may need much assistance and direction to help them carry out their role in the treatment process. In some cases, the project staff may need to become "the bad guys" in advocating for the child and family so that the family can maintain a good relationship with the community agencies.

The authors do want to stress that agency involvement is crucial in the provision of services for special children; that everything a staff member can do to facilitate a positive, supportive relationship between the agencies and family members should be attempted; and that community resources can be a valuable asset to the therapeutic process and continuation of care if properly oriented, motivated, and encouraged.

PROVISION OF SERVICES TO AN AGENCY, PROGRAM, OR CLIENT SYSTEM

The second part of this chapter deals with the kinds of services provided by the PPNIC to community agencies that are not directly involved with a child in the residential aspect of the program. This component of the PPNIC program is typically referred to as community consultation services.

The agencies that request training, consultation, and assistance are variable in their nature and needs. Community mental health clinics, school systems, individual therapists, residential treatment programs, university groups, county human services boards, and parent organizations are examples of the kinds of community personnel that request assistance in dealing with psychotic and neurologically impaired children. The types of requests are also very diverse. They include requests such as generally orienting staff to the characteristics of psychotic children, training agency personnel to design and implement behavior modification programs, assessing and diagnosing a child, giving a teacher recommendations regarding how to organize a classroom, as well as assisting a residential program staff in basic administrative and organizational skills.

Because the nature of the agency needs and requests are so diverse, no one approach can be used in providing services to community agencies. Instead, each request for consultative services must be thoroughly investigated, and an individualized approach to meeting its needs must be developed. Therefore, no one model of providing services can be reviewed here. The common elements in providing consultative services with a few representative examples of how these methods have been implemented will be discussed.

The project staff adhere strongly to the systems approach in providing services to clients throughout their work with consultation requests. As with a client referred for residential placement, the project staff look at and assess the entire system of the delivery of services when involved with a consultation. This becomes a critical point when an agency makes a request for one specific service for a client. The project staff then assess the situation and learn that providing that one specific service will not result in the benefits the agency hoped to achieve. Rather a more comprehensive approach may be needed, or a coordination of several services would be necessary to gain the desired results.

A request for specific staff training made by a residential treatment program illustrates this type of situation. The residential treatment program staff had visited the PPNIC program and were very impressed with the positive staff-child interactions, the detailed, structured treatment programs designed to teach children additional skills, and the effective treatment results. They requested that the PPNIC staff teach their staff members how to design and implement similar therapeutic programs for the children in their programs. They perceived their need as a lack of specific, concrete skills in applying behavior modification techniques.

The PPNIC staff visited the residential program in order to gain an understanding of their present programming skills. During this visit, the PPNIC staff learned that there were many administrative, organizational, and attitudinal problems that would prevent specific treatment programming from being beneficial to the children. Presently, any staff member was given the opportunity to use any treatment techniques he chose whenever he wanted; treatment programs were not designed with input from various members of a multidisciplinary team; there were no written programs; and there was no established method of communicating such programs to other staff members involved with the child. In addition the staff members involved with the children in the school setting had authority to treat the child as they thought appropriate; the social workers interacted with the children and made recommendations to the parents based on their professional training; and the cottage staff members established rules and policies that they thought were beneficial to the entire functioning of the cottage. If there were differences of opinion as to what treatment approaches or methods would be most beneficial to the child, no method for resolving these differences had been established.

In this situation, the project staff shared their observations and assessments with the administrators of the residential program. After much discussion, the administrators were able to more clearly see their own problems in attempting to provide a comprehensive treatment program for the children they served. It was agreed that the PPNIC staff would assist the administrators in establishing an administrative structure, communication system, and written policies and procedures prior to teaching the staff specific behavior management techniques and skills. A very intensive consultation schedule was established, and after several months of frequent visits and discussion, the administrative structure, policies, and communication systems were altered to provide a more workable provision of services.

In addition to needing assistance in identifying one's own weaknesses or service needs, community agencies often request assistance from the PPNIC staff in incorporating new ideas into a situation. Sometimes an agency will be able to identify their problems very well but will need help in the process of creatively working out solutions. They have become so accustomed to specific practices and methods of dealing with situations that they are unable to think about new approaches.

In other situations, the community agency may need additional professional support in order to implement specific services for their client. They may need professionals knowledgeable about the needs of psychotic children to collaborate with them and give their requests more impetus. This kind of situation can typically occur in the public school systems. A school system may need professional support and recommendations to hire additional staff members in order to provide a more comprehensive educational program. In trying to secure additional funding, they often have to deal with administrators who do not understand the special needs of autistic or autisticlike children. Collaborating recommendations with supportive data that clearly demonstrate what can be gained with a better teacher-child ratio can be very convincing to such administrators. Once again, this is an example of how the project staff can be an asset for community agencies in their pursuit of developing services for children not needing residential care.

Another typical kind of situation the project staff frequently engages in involves preventing residential placement whenever possible. When some children are referred to the program, the community agencies are expressing their inability to provide adequate services. Through the referral process, the program staff may determine that if only one or two additional services, or modifications in existing services, would occur, the child would not need residential placement. In such cases, the project staff would offer to work with the community agency in order to facilitate this change. A classroom teacher may need help in providing a more positive learning experience, a classroom aide may need to be hired to allow for more individualized instruction; communication between a school system and family may need to be established; or a child may need to be taught some socially appropriate skills.

These situations are individually assessed, and plans to remedy the situation are agreed upon prior to any intervention. The approach is generally to help the community agencies identify their needs, plan what action has to be taken, and encourage the community agencies to develop or modify their own services to meet their clients' needs. In addition to giving direction to the agencies throughout this process, the project staff become a support system for the agencies.

Although these situations might appear quite simple and the solutions too elementary, they are real situations that affect the lives of children and families. When dealing with the needs of a very specialized population, such as autistic or autisticlike children, one must be aware that such children are very rare in many communities. Consequently, services will be developed for more common disabilities, but few people will feel skilled or knowledgeable enough to develop services for a disability that is so rare. Consultation from people skilled in working with these children is needed in order to provide the children with services in their own community.

The following example of a community consultation service provided by the project staff illustrates some of the problems that agencies have in attempting to identify a child's needs and the methods for implementing appropriate services. The initial inquiry for consultation services was made by the educational staff of a metropolitan area child and adolescent inpatient treatment center. The request for consultation concerned an 11-year-old female who had been an inpatient at the center for the past 7 years. Barbie's behavior was described as "uncontrollable and extremely self-destructive" by the referring staff. Previous attempts to treat the child, including traditional psychotherapy, a token economy program, and plenty of TLC, had not resulted in any substantial change in Barbie's behavior. Prior to instituting an aversive conditioning program, the Mendota project was contacted and asked to provide recommendations for alternate, but less severe, treatment methods for Barbie.

Before any consultation agreement was negotiated, a team of professional staff from the Mendota project visited the center to assess the nature of Barbie's behavior. Observations of Barbie revealed periods of hyperactive behavior, noncompliance to staff requests and demands, temper tantrums, aggressiveness toward staff and other children, inappropriate social behaviors, and delayed language. The original concerns of the center staff that Barbie was "self-destructive" proved to be a misperception. In reality, Barbie's tendency to bite her arm or pull her skin could be defined more accurately as a temper tantrum since it was of a minor nature. These low-level behaviors represented no danger to the child and were seen as primarily designed to gain staff attention. For these reasons, the use of any aversive conditioning procedures were contraindicated. Because of the similarities in Barbie's behavior with those children in the Mendota project, an agreement was made to assist the center staff in developing a similar treatment program for Barbie.

As a first step in the training program, members of the center staff were invited to tour the Mendota project to observe how such a treatment approach is conducted. Individuals having the most contact with Barbie each day, including two nurses, a teacher, and occupational therapist, and several ward attendants, spent 1 full day on the Mendota project observing the children and discussing the goals and logistics of implementing such a treatment program with Barbie.

The nature of the treatment program required that anyone having contact with Barbie be able to carry out the treatment plan. Therefore, it was not a simple matter of training only several key persons on the center staff. Rather, upwards of 30 staff members, on both the day and evening shifts, needed to receive training. The departmentalized nature of the center presented problems in providing consistency of treatment. The center structure was based upon a traditional departmental system comprised of nursing and medical ward attendants, education, occupational therapy, language, and psychology personnel all working relatively independently of one another. In order to facilitate training of the entire staff as well as coordinate Barbie's treatment, it was decided to use a workshop training approach. Built into the workshops were procedures for evaluating the development of treatment skills in individual staff members.

Two separate workshops were conducted, the first on baseline and the second on treatment. The workshops were conducted at the center facility by four members of the Mendota staff (psychologist, nurse, occupational therapist, and speech pathologist).

Three identical 2-hour baseline workshops and two 2-hour treatment workshops were given throughout the day in order to keep the number of participants in each group small. There were three objectives of the baseline workshop. The first was to introduce the center staff to the rationale and purpose behind the Mendota project treatment model. Secondly, it was to introduce the specific behavioral definitions developed at the Institute to categorize inappropriate behaviors such as noncompliance, aggressions, and temper tantrums. These could then be used to define the nature and intensity of Barbie's inappropriate behaviors in a more explicit manner. The third objective was to teach the staff how to observe and record the target behaviors using counters and tally sheets.

The procedures used during the baseline workshops were based upon recent research in the paraprofessional literature demonstrating the value of incorporating procedures which allow trainees to observe models and practice expected behaviors, as well as to obtain immediate feedback on performance. During at least 1 hour of each workshop, the Mendota staff modeled appropriate recording skills in a role play situation. This allowed the workshop trainees an opportunity to practice recording behaviors on counters. That is, following a discussion of the treatment rationale, objectives, and behavioral definitions, the presenters role played a series of short scenes in which one person behaved like Barbie, displaying noncompliant, aggressive, and temper tantrum behaviors. The other person behaved like a staff member giving "Barbie" a series of short commands. Simultaneously, the audience was given counters and told to record the frequency of the behaviors they observed. Role play situations were frequently interrupted to check and compare behavior frequency counts and to answer any questions regarding their individual observations. Through such a procedure, it was possible to evaluate the progress of each individual in the workshop as to their ability to reliably record behavioral occurrences. After 1 hour of supervised practice and feedback in the workshop, nearly all of the participants were able to record the three behavior categories with 75% accuracy or better.

Following each of the three baseline workshops, two members of the Mendota team met with groups of two or three center staff members who attended the baseline workshop, in order to conduct additional "mini-training" sessions. The purpose of the mini-training sessions was to provide the center staff with additional practice in recording as well as with individual attention for any difficulties they encountered. These sessions were impromptu in nature, depending upon what staff were free at the time, and utilized a similar role play, practice, feedback model as in the baseline workshop.

On the day following the baseline workshop, the center staff took a baseline count of Barbie's behaviors. Two of the Mendota training team were present at the center to assist the staff in conducting the baseline. Staff members were assigned to tally the frequency of Barbie's behavior throughout the day. The baseline count was sampled for 4 days.

As previously indicated, the departmental nature of the center staff resulted in each discipline working with Barbie relatively independently of one another. The task of completing a baseline count for four consecutive days demanded that the staff work together as a team. Each of the disciplines had to share in the responsibilities of obtaining the count. An example of the kind of cooperation generated was observed when teachers volunteered to spend their free time supervising other children on the ward in order to free up ward staff to take Barbie's baseline count. The expansion of such cooperation among disciplines was considered essential to the success of Barbie's treatment program, and the development of this cooperation was a major objective of the consultation team.

The treatment phase of the training program began following the week of baseline data. A similar approach to that used during the baseline workshop was used in the treatment workshop. That is, following a presentation of the basic treatment approach, videotape scenes of the children being treated in the Mendota project were shown. The participants were then divided into two smaller groups where the basic treatment techniques were role played. These included the reinforcement of pro-social behaviors and the administration of time-outs for inappropriate behaviors.

Despite some initial hesitancy to engage in the role play situations, this technique was extremely successful in teaching treatment skills. By the time the treatment workshop was concluding, everyone appeared uninhibited and were expressing confidence in being able to start treating Barbie the following day.

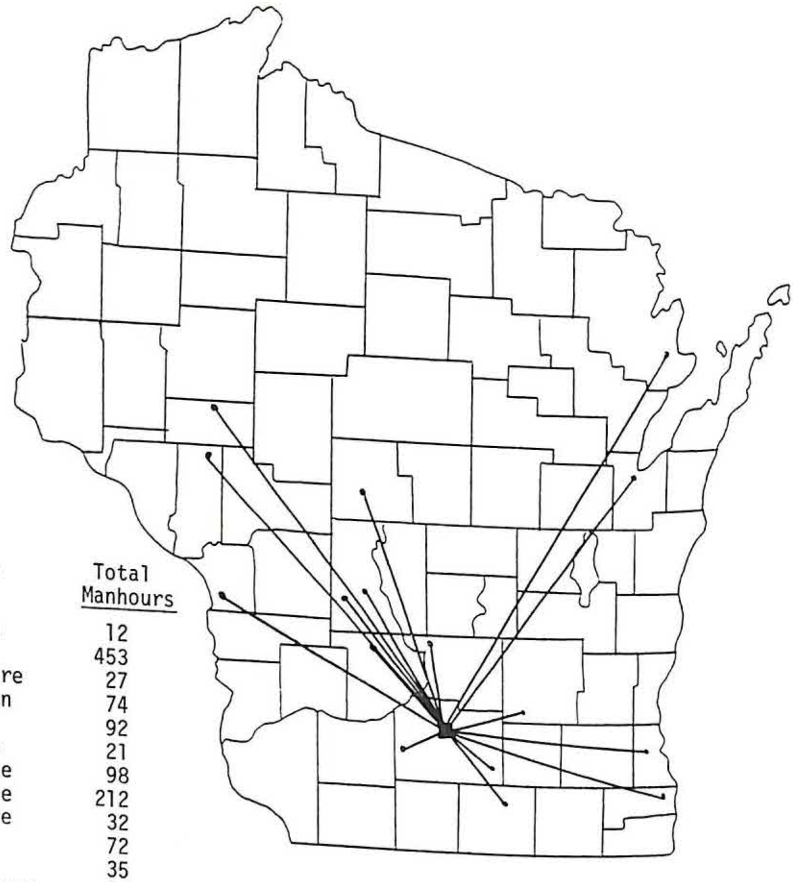
The first phase of treatment involved following Barbie's noncompliance with an immediate 2-minute isolation in the quiet room, while ignoring as much as possible her aggressions and temper tantrums. Furthermore, Barbie received increased praise from the staff for her appropriate behaviors. The process of ignoring behaviors such as aggressions and temper tantrums, giving time-outs for noncompliance, and providing reinforcement to Barbie for appropriate behavior was a new experience for both center staff, and certainly for Barbie. In order to insure that the treatment program began as successfully as possible, two members of the Mendota consulting team spent the first day of treating Barbie and supporting the center staff throughout Barbie's attempts to test their consistency.

The program was run with close supervision for 7 weeks. The success of the center staff in maintaining a consistent treatment strategy with Barbie is evidenced by the weekly sample counts of Barbie's behavior. After 3 weeks of treatment, the percent compliance reached 94 and has consistently remained above 90. This reflects an increase of 30-40 percentage points above baseline. In addition, aggressive behavior was treated, and the results indicated significant improvement. The frequency of aggressions decreased sharply from baseline counts of 400-600 during a 12-hour period to less than 50.

The Mendota staff has maintained a close relationship with the center staff as the treatment program has expanded. Mendota staff continue to make the 75-mile trip to the center to consult as needed. In addition, the Mendota project staff are available by telephone whenever a concern needing consultation arises. The initial emphasis in consulting was to guide the staff in carrying out the specifics of the treatment plan. However, as Barbie's behavior improved and the staff developed confidence in their methods, greater emphasis was placed on setting up the mechanisms within the center so that they would become less dependent on the Mendota project for routine maintenance of their program.

This has involved helping them to reexamine their departmentalized system, in favor of establishing channels of communication between disciplines to insure that the responsibilities of running the program would continue to be met, and in a consistent manner.

While this example emphasized the consultation models with another residential system, the basic model is adapted and applied to whatever type of agency



Counties Served	Total Manhours
Columbia	12
Dane	453
Eau Claire	27
Jefferson	74
Juneau	92
LaCrosse	21
Marinette	98
Milwaukee	212
Outagamie	32
Racine	72
Rock	35
Trempealeau	20
Waukesha	104
Wood	131
State-at-Large	118
TOTAL	1511

Figure 7-1. Number of counties served and total manhours of community consultation and training provided by the Mendota Project during a three month sample of time.

which may request assistance. This could be a public school, daycare center, group home, foster home, or community mental health center.

The number of requests for training, the geographical location of the agencies requesting such consultation, and the number of project staff manhours spent in consultation activities during a 3-month period if clearly depicted in Figure 7-1. Such information shows that there is a real need and demand for assistance in providing community services for psychotic and neurologically impaired children.

SUMMARY

This chapter has dealt with the issues involved and methods used in basically two different kinds of community involvement. The first kind of involvement reviewed was that necessary and beneficial to assure a smooth transition for a client directly involved with the project. The second kind of community involvement discussed was the systems approach used in working with agencies when no specific client was involved with the project. In both cases, similar approaches of assessing the client's or agency's needs, determining the availability of resources, assisting the agencies in modifying or developing resources, and, finally, giving the agencies additional support were used. The demand for such assistance was clearly shown by the high frequency of requests for consultation or training services during a very brief period of time. In addition, this chapter has attempted to reiterate the need for a total systems approach in the provision of services for psychotic or neurologically impaired children.

8
Darren

This 5-year, 5-month-old Caucasian male was referred for possible admission to the program for Psychotic and Neurologically Impaired Children by the Director of Special Education because of reported behavior and management problems at home and school. These problem behaviors were described as aggressive "uncontrollable" temper tantrums, marked hyperactivity, noncompliance to instructions, delays in the development of language, and inability to establish relationships with peers.

When D. entered kindergarten at the age of 5 years, 2 months, he was very different than the other children. Although in the 53rd percentile for height and weight, and although a very handsome child, his behavior and skills were very different from those of the other children. The teacher soon noticed that he was unable to stay in his chair for more than a few seconds, seemed to follow the actions of the other children rather than verbal instructions, engaged in many repetitive behaviors (*i.e.*, handflapping, finger snapping, twirling toys, and rubbing soft materials), and became very upset when the routine was changed or when one activity ended and another was about to start. D.'s language skills were also very delayed and he rarely talked. When D. did speak he often repeated television commercials or would sound as if he were a parent speaking to a child. The teacher referred D. to the school psychologist for testing.

The school psychologist was unable to administer any standardized test to D. because of D.'s very short attention, refusal to comply with instructions, and constant screaming, hitting, and seeming preoccupation with handflapping, twirling objects, and finger snapping. The school psychologist asked the Director of Special Education to observe D. both in the classroom setting and the testing room. The Director of Special Education was equally confused about D. and was also unable to assess him. However, he was familiar with the Project for Psychotic and Neurologically Impaired Children at Mendota Mental Health Institute and thought that they might be helpful in assessing D. and giving the school some ideas for helping him.

Mr. and Mrs. H., D.'s parents, were asked to attend a meeting in early October, with D.'s teacher, the school psychologist, and the Director of Special Education. At this meeting, Mr. and Mrs. H. learned about D.'s disruptive behaviors, his repetitive body movements, his severe temper tantrums, and his delayed language skills. This was not new to Mr. and Mrs. H. as they had had concerns that D. was different than their older children and the other children in the neighborhood. In fact, their life had become one hectic whirlwind with D.'s temper tantrums, constant motion, and refusal to obey them. They had always been told not to worry, that he will outgrow it, that each child is unique and develops differently, etc. They were relieved that someone had finally seen their concerns and realized that D. was different. Yet, they were frightened, and they wondered what this all meant. Would D. ever be like other children? Would he become a teacher as they had hoped? How could any child be expelled from kindergarten, and was that going to happen to D.? They agreed to have some people from Mendota Mental Health Institute observe D. and give their opinions of his behavior and what could be done.

The staff of the Project for Psychotic and Neurologically Impaired Children (PPNIC) at Mendota Mental Health Institute (MMHI) were contacted regarding D. They agreed to observe D. in the classroom setting. However, they asked if they could contact the County Human Services Board as they felt it was important for that agency to be aware of the possible need for servicing. When the PPNIC social worker contacted the Rock County Human Services Board, she learned that this agency was unaware of the family, the child's special problems, and possible need for services. The social worker of the Human Services Board was asked and agreed to join the PPNIC staff at D.'s school. The PPNIC social worker also requested that the family be invited to attend a meeting at the school, just following the observation, so that the school personnel, PPNIC staff, and Human Services Board representative could share their impressions with the family.

The PPNIC language therapist and social worker observed D. in his classroom setting about 2 weeks later. They took a 20-minute behavioral sample of D. during a small group activity. They also quickly made an assessment of some of D.'s strengths and deficits during their 1½-hour observation. The language therapist recorded everything D. said for 45 minutes and was able to get a mean length of response of 1.4 words from her sample. The 20-minute behavioral data they collected included the following:

Compliance–
  16 commands given
    2 successful completions of the task

12.5 compliance rate
Aggressions–4 incidents in 20 minutes
Temper tantrums–34 incidents in 20 minutes
Bizarre or stereotypic mannerisms–46 incidents in 20 minutes

Although these samples were very brief, they indicated definite problems in the areas of compliance, temper tantrums, and bizarre mannerisms. In addition, the PPNIC staff identified the following concerns:

1. D.'s short attention span
2. D.'s inability to play with toys appropriately
3. No social contacts initiated by D.
4. D.'s poor eye contact when spoken to
5. D. using disruptive behaviors in order to get out of a situation
6. D.'s very delayed language skills

At the meeting following the observation, the family, teacher, school psychologist, Special Education Director, Human Services Board social worker, and PPNIC staff shared their specific concerns regarding D.'s behaviors and skill deficits.

The following problems or goals were outlined:

1. Noncompliant to a verbal instruction (S,F)[a]
2. Noncompliant to house rule or classroom expectation (S,F)
3. Aggressive to others (F)
4. Temper tantrums unprovoked and when he can't have his own way (S,F)
5. Engages in repetitive, bizarre mannerisms (S,F)
6. Short attention span (S,F)
7. Inability to play with toys (S,F)
8. Delayed social skills (S)
9. Poor eye contact (S,F)
10. Delayed language skills (S,F)
11. Inability to work in a group or follow group command (S)
12. Inability to tolerate large groups, such as cafeteria at school (S)
13. Erratic sleeping patterns (F)
14. Refusal to eat more than a few different foods (F)
15. Inappropriate toileting (F)
16. Inappropriate behaviors at community facilities (shopping center, restaurant, etc.) (F)

[a] S–concern expressed by school
F–concern expressed by family

Some of D.'s strengths or assets discussed were the following:

1. Very likeable child
2. Physically healthy
3. Enjoys praise
4. Has worked well for a tangible reinforcer
5. Often seems to learn things quickly
6. Is toilet regulated

In addition to the deficits and strengths outlined above, the parents stressed their confusion as to how to discipline D. and what to expect of him. They also questioned how much longer their family could tolerate living with D.'s disruptive behaviors. The school personnel recommended placing D. in a classroom for the mentally retarded as they could not maintain him in the kindergarten classroom and had no other programs for 5 year olds.

The PPNIC staff recommended that everyone at the meeting visit the PPNIC program in order to see the kinds of programming available for children like D. The family requested that D. be admitted to the PPNIC; however, the PPNIC staff recommended that no definite decision be made until they had an opportunity to see the facility, meet other staff, see the behavioral programming used with other children, and learn about some past results of the program.

Prior to the conference, past medical, neurological, and social information was obtained from the family's pediatrician and school system. This information revealed the following history:

D. was the 8-pound product of an uncomplicated pregnancy, labor, and delivery. His early developmental history was reported by the parents to be somewhat slower than that of his siblings with overactivity in his early toddler years. Mother states that he appeared to be different from his siblings in that he was "not as cuddly as the others." Other problem behaviors noted in these early years and progressively worsening were noncompliance, negativism, yelling and screeching, seeming to test limits, easily frustrated and, in general, behavior that would "easily frustrate, exasperate, and drive almost any parent to despair." He also reportedly "refused" to be toilet trained and often defecated in his room and smeared feces. At age 3 years, 2 months, he was evaluated by a neurologist because of the parents' concerns over delayed language development. This was characterized by markedly delayed expressive language with questionable marked impairment of receptive language. Because of this language impairment, audiological examination was performed and results showed normal hearing bilaterally.

One year prior to admission to the PPNIC, the parents asked that he be admitted to a treatment program in another state. He reportedly did not satisfy the research criteria to that unit, but the parents, after reading of previous success of megadoses of vitamins and diet in controlling hyperactivity, began this program. It was apparently not successful. Later that year, following a trial of several medications for hyperactivity, the parents entered him in a preschool program. They had hope that this structure would assist him in developing some self control over his behavior, but this was not successful. The preschool noted that his temper tantrums frequently involved screaming, crying, kicking, biting himself and others, and pulling hair of others. They also noted some autisticlike motor mannerisms of finger flicking, twirling, fascination with wheels, and repetitive play with water.

FAMILY HISTORY

D. is the third child in a family of four siblings. An older brother is age 10 and is described as being "well adjusted" with good school performance and involvement with peers and activities. HIs older sister, age 7, is also reported to be functioning quite well in school. She also was described as being popular and well liked by other children in the school and neighborhood. A younger sister, age 3, is described as being an active child, exploring and curious, who has developed normally. Father, age 43, is an executive with a farm implement company. He does not travel in his job and appeared to express genuine and realistic concern over the behavior and development of his son. He describes his feelings of disappointment with D., stating that he wishes the child could be more able to do what his older children could do at that age. Father completed college, and there is no reported mental illness or congenital disease in his extended family. Mother is 37 years of age. She completed a 2-year executive secretarial training course following high school. She has not worked since her first child was born and states that she sees her role as that of a "mother and wife." Mother expresses guilt when she talks of her son. This is expressed in various ways and includes "maybe we should have put him in school sooner" and "perhaps there is something more we should have done." In further discussions she also states that she "should have gotten some help sooner." In questioning the history of mental illness or congenital disease in her extended family, she states that a cousin suffered from alcoholism. The remainder of the family history was negative.

The parents were married 12 years ago. They had met while working at the same company. Following an engagement of 7 months, they married, bought a home, and settled in a town near both sets of grandparents. Maternal grandparents, especially grandmother, are frequent visitors to the parents' home, babysitting and occasionally caring for the children if the parents are on an overnight trip. This is an increasingly rare occurrence due to the behavior of D., the parents' reluctance to be away from home, and the grandparents' inability to manage him. The paternal grandparents travel frequently and are somewhat less frequent visitors to the family.

Medically there have been few problems. There is no history of serious infection or high fevers, no reported seizure history, and only occasional ear infections since age 2 which have been noted to respond to antibiotic therapy without complication. All previous medical, neurologic, and laboratory/biochemical screening revealed no abnormalities. There was no history of CNS infection, trauma, or metabolic disorder.

A conference was set up at the PPNIC for November 7th. The conference at the PPNIC consisted of explaining and touring the program, discussing treatment results with other children, outlining the family's responsibility in treatment, and explaining the school system's involvement in assisting with treatment goals as well as transitioning at the time of discharge. The occupational therapist and language therapist attempted to assess some of D.'s skills while they took a 45-minute behavioral sample. The results of the sample were very similar to the 20-minute sample taken in D.'s classroom. Specific treatment goals were outlined again and remained similar to those previously listed. A placement of 9 to 10 months was estimated because of the numerous goals to achieve, and that would allow D. to be transitioned into a community classroom at the beginning of the school year.

Although both the family and school system personnel felt very enthused about the program, the school personnel were hesitant to make any commitment and questioned whether they could provide adequate programming at the time of D.'s discharge. Mr. and Mrs. H. agreed to drive 1½ hours to MMHI every other weekend, attend a 2-hour training session, take D. home for the weekend, and follow through on all treatment recommendations. The participation of D.'s two older siblings was discussed, and it was decided that Mrs. H. would make arrangements to have them excused from school for one training session per month. They would also attend all training sessions held in the H.'s home.

The school system's reluctancies were discussed in great detail. The school transitioning program, usually offered by the PPNIC staff, was explained with emphasis on what the PPNIC staff could do to assist the school system in providing a good program for D. and stressed the fact that the school system did not have to duplicate every aspect of the PPNIC program. Specific arrangements would be made to alter PPNIC programming to make it compatible with the school environment.

The PPNIC staff felt that they would have some problems with the school system at the time of discharge and anticipated that they would have to deal with the school system personnel's reluctancies to adopt the PPNIC treatment techniques. Therefore they discussed this future potential problem with the Human Services Board social worker. It was decided that a social worker from the Human Services Board would participate in all parent training sessions, attend PPNIC evaluation and planning conferences every 3 months, work directly with Mr. and Mrs. H., assist with placement problems at the time of discharge, and provide follow-up visits to the family's home and school.

With these agreements established, an admission date was set up, specific arrangements were made, and agreements to follow through on the above tasks were written and signed by the family, Human Services Board, and PPNIC staff.

D. was admitted to the PPNIC on November 22nd. He spent the first several days adjusting to the routine and enjoying the lack of consequences to his disruptive behaviors. Meanwhile, the staff observed D.'s behaviors and skills. The specific behaviors that were disruptive or interfered with D.'s attention to task were documented into one of the three categories–agressions, temper tantrums, or bizarre mannerisms–according to which they most closely resembled. Specific skills, likes, and dislikes were also recorded to be used in the behavioral programming.

Following 4 days of observation, a period of baseline was completed. For the next 3 days, a 4-hour count was taken in the morning, and another 4-hour count was taken in the afternoon. Each sample included 2 hours of classroom time, one meal, and 1½ hours of less structured time in the unit day room. Each sample included a compliance rate of success, and frequency counts of aggressions, temper tantrums, and bizarre mannerisms. The following definitions were used for the sample counts and method of counting:

Compliance: After the command was given, the child had 5 seconds to begin to comply (defined as some bodily orientation toward approximating the task). In addition, to be successful, the *child had to complete the task*. There was no specific amount of time in which D. must complete the task. Upon completion, the trial was scored as a success. When D. stopped (defined as not making any movement directed toward complying for 2 seconds) while completing a task, it was considered a failure. During the assigned behavior samples, each command was counted, with the following exceptions:

1. Commands which require skills traditionally taught in a school setting (*i.e.*, colors, number concepts, shapes, hand raising programs, etc.) were considered academic skills and *were not counted as trials.*
2. Commands which required a verbal response on the part of the child *were not counted as trials.*
3. Commands which gave the child a choice of responses or a choice not to respond (*i.e.*, would you . . . could you, how would you like . . .) *were not counted as trials.*
4. Commands involving gross and fine motor skills, play skills, as well as self-care skills *were not counted* if (a) D. did not have the skill or (b) there was a question as to whether D. had the skill.
5. The commands "eat," "drink," and "look" *were not counted as a trial.*

Aggressions:	Aggressions included each instance of any of the following: ● kicking, hitting, pushing, pulling, pinching, scratching, or biting people ● licking another ● blowing, spitting, or finger flicking at or on people ● throwing objects at people ● walking on others ● grabbing or stealing objects from others ● grabbing (not touching) any body part of another Also included were (a) *attempted aggressions* which were stopped or which simply missed their target, (b) *accidental aggressions* occurring during a period of temper tantrum or clumsiness, and (c) *low level aggressions* such as raising a hand to hit but not following through.
Temper Tantrums:	Included one or more of the following: ● kicking, hitting, biting, pinching, scratching self or objects ● screaming, whining, crying when not physically hurt ● slamming doors ● dumping things ● throwing objects at something other than people ● ripping, tearing, or breaking materials ● darting from a situation All temper tantrums must stop for 5 seconds before another temper tantrum could be counted, even if the child changed behaviors. For example, if the child cried, paused for 2 to 3 seconds, then started kicking some toys, this was counted as a single temper tantrum.
Bizarre Mannerisms:	Included: ● a lick on or at objects or self ● a blow on or at objects or self ● a spit on or at objects or self ● a sniff on or at objects or self ● a finger flick in isolation, on an object, or on self ● a finger snap in isolation, on an object, or on self ● an inappropriate twist of objects or self ● an inappropriate twirl of objects, self, or a body part ● an inappropriate act of touching another person ● bringing child's face within 3 inches of another person's face ● putting anything inappropriate (*i.e.*, hands, toys) in or on any body orifice (*i.e.*, eyes, ears, mouth, nose) ● putting hand(s) in or on pants from waist to crotch ● masturbating ● an inappropriate giggle

- an inappropriate clap

Specific continuous body movements (defined as continuous body movements in two different directions repeated at least once with less than a 2-second pause):

- rubbing
- leg swinging
- flapping
- body rocking
- shoulder shrugging
- head shaking
- tapping
- hyperventilating (inhale, exhale, repeat)

Each of the above defined mannerisms were counted as only one mannerism and considered as the same mannerism regardless of (a) which limb of the body performed the mannerism and (b) where the mannerism was done (*i.e.*, on child's head, toe, or object). If *two different mannerisms* occurred simultaneously, each mannerism was counted. *Two identical mannerisms* had to be separated by either:

1. five seconds or
2. a different mannerism

before both were counted. In addition, the intervening, different mannerism was counted.

If there was a continuous bizarre mannerism (*i.e.*, finger flicking) during which time other bizarre mannerisms were occurring, the continuous mannerism was considered an intervening mannerism, and therefore the other mannerisms did not have to be separated by a 5-second lapse in order for them to be two counts. However, continuous mannerisms were only counted once and must be separated by a 5-second lapse to be two counts.

The 4-hour sample result averages were as follows:

Compliance: 24%, 21%, 19%, 23%, 10%, 18% = 19%
Aggressions: 65, 48, 72, 58, 67, 73 = 64 incidents in 4 hours
Temper Tantrums: 145, 162, 168, 138, 157, 147 = 153 incidents in 4 hours
Bizarre Mannerisms: 348, 450, 478, 441, 484, 497 = 450 incidents in 4 hours

In addition to the behavioral samples, D.'s eye contact and ability to play with toys was assessed. The results of the eye contact samples showed that 8% of the time that D.'s name was called, he would glance at the staff's eyes. He never continued looking for even 1 second. D.'s ability to play with toys demonstrated that he did know how to stack rings, put together some three to six piece connecting puzzles, and play with a few other toys at a 2-year level. However, when instructed to play, he averaged 18 seconds of play before he was off task (defined as stopping to play or looking away for 5 seconds).

MULTIDISCIPLINARY ASSESSMENTS

During D.'s initial 2 weeks with the PPNIC, he was assessed by various members of the multidisciplinary team. Assessments were done by the occupational therapist, language therapist, special educator, and physician. Although D.'s noncompliance, temper tantrums, and preoccupation with repetitive behaviors were greatly interfering with accurate assessments, sufficient data were gathered in order to establish some preliminary goals and determine some of D.'s strengths.

Occupational Therapy Assessment

D. was initially seen in occupational therapy for the purpose of evaluation in the first 2 weeks of his admission. He was evaluated in the areas of gross and fine motor development, self-care skills, and social skills.

Gross Motor Skills. He was very difficult to evaluate in the areas of gross motor skills. He was noncompliant and had several temper tantrums. He appeared to function, on the basis of observation, at the 3-year level. There was a normal gait but he had a tendency to occasionally shuffle his feet while walking and occasionally toe walk. He could walk a straight line and run without falling. It was not possible to assess balance skills; however, he could ascend and descend from a sitting position (on the floor) and also from a prone and supine position. He was a rapidly moving child who preferred to roam about the room, using gross motor skills in many activities.

Fine Motor Skills. He demonstrated most of his fine motor skills with the use of his right hand. He appeared to be functioning between an 18- to 24-month level in areas of fine motor coordination. D. could build a three block tower out of 1-inch block cubes. He could place ten of these blocks into a can with constant redirection. He demonstrated a neat two point pincer grasp while manipulating small objects such as pegs, beans, and buttons.

D. held a crayon with a gross grasp and could scribble spontaneously. He could not imitate a vertical stroke within a plastic stencil. He appeared to have difficulty with bilateral activities such as pulling pop beads apart or putting them together, stringing 1-inch or ½-inch beads, or screwing a jar lid into position.

He demonstrated poor visual size and shape discrimination. He could not place a large circle into a form board. He could work simple four piece connecting puzzles.

Self-Care Skills. He was dependent in the areas of self care. He was quite uncooperative during the dressing evaluation. He was noncompliant and seemed to do the opposite of what was asked of him. The following results are in question as to their validity. Undressing skills were developed to the point of removing a pullover shirt independently. He could pull his pants down from his waist, but could not/would not remove his legs from them. He could remove his shoe and remove his socks once they were over his toe.

He was capable of putting on a pullover shirt once it was pulled over his head. He could/would have no part in pulling on his pants. He could put on his shoe once the toe was placed in the shoe and could pull on his socks once they were gathered and placed on his toe.

A baseline of toileting behavior revealed an average of one urination accident per day with three urination productions in the toilet (75% correct toileting). He occasionally, if left alone, smeared feces.

He was a self feeder. He could feed himself with a spoon, holding it with a gross grasp but preferred to use his fingers. He also played with his food and frequently spit out food he did not like. He could drink from a cup using either one or two hands.

He was fairly dependent in all other areas of self care, including bathing, tooth brushing, and grooming skills.

Social Development. He was a very attractive child who elicited a lack of eye contact and social behavior. He was very noncompliant and had several temper tantrums. He did not work for social reinforcement but could for primary reinforcers. He would not perform for a delayed reinforcement. He did not seek out other children or toys and did not approach staff to indicate his needs.

Language Therapy Assessment

D. was seen by the language therapist for the purpose of evaluation during his second week with the PPNIC. A Peabody Picture Vocabulary Test could not be administered because of D.'s poor attention to the task. Informal testing by observation revealed that D. could motor imitate when given the command "do this" and a model by the tester. He identified one body part, that of "head." The preposition "in" was also correctly identified receptively. D. was able to match object to object when two foils were present. He could not, however, match object to picture or picture to picture within the same class.

In regard to expressive language, mean length of response was 1.4 words. He was capable of using a two- to three-word utterance such as "want ______," "all done," "go home." These utterances were used very infrequently. Most of his spontaneous speech consisted of echolalia, both immediate and delayed, and perseverative speech. D. repeated phrases heard on commercials or statements of adults in a repetitive manner. He would modify these statements so that they eventually became unintelligible to the listener.

He could label some household items such as foods, clothing, and transportation. He could not respond to a picture with a noun-verb phrase. He occasionally used verb phrases "ride _____," "eat _____," and "wear _____," when shown clothing, food, and means of transportation.

The impression was that he was functioning at about the 2- to 3-year-old level in expressive language. He was easily frustrated when demands were placed on him. His social interactions were minimal.

Educational Assessment

The special educator attempted to administer academic tests to D.; however, he was very uncooperative. He demonstrated severe disruptive behaviors in the classroom setting. He rarely sat in his chair for more than 10 to 12 seconds, he repeatedly threw all teaching materials off his desk, and he engaged in many attention seeking behaviors when the teacher attempted to work with other children.

However, the special educator was able to determine that D. had some preschool skills. He knew four colors, receptively and expressively, was able to count to six, could scribble spontaneously, could identify some common household objects, and could put together some three to six piece connecting puzzles. The academic assessment resulted in preschool programming goals designed to meet D.'s academic lags. However, the main goals for D.'s placement in the classroom consisted of behavior management and assisting D. to work in a group setting.

Medical/Psychiatric Assessment

The medical/psychiatric assessment was conducted during D.'s first week of admission. Neurologic evaluation, including skull radiograms and electroencephalogram, were performed on admission. On examination he appeared quite active, shown by scrambling about the room, picking up and discarding of multiple objects, and general uncooperativeness. His speech was noted to include repetition of one-word or two-word phrases spoken by the examiner. He also appeared to sing an unintelligible song at times. He showed no eye contact and would not respond to commands. Any attempt by the examiner to hold him was met with screeching, rigid posturing, or finger flicking. Examination showed head circumference of 51 cm, without parietal bossing. The eyes were normally set as were the ears, and the palate was normally arched. Examination of the skin failed to reveal any neurocutaneous lesions. Palmar creases were normal. Genital examination was normal and no evidence of hepatosplenomegaly was noted. Cranial nerves showed the EOM's to be full and the pupils to be equal and reactive to light. The discs were seen briefly, and no evidence of papilledema was noted. The retinae were grossly intact and visual fields appeared full. The faces were symmetrical and gag was midline. Sensory exam was normal to pin, and motor exam showed no major abnormalities. Gait was normal with occasional toe walking, and no ataxia movements were seen. No evidence of gross dyssynergia, dysmetria was noted on reaching for objects. Deep tendon reflexes were difficult to assess, but no evidence of pathology was seen. The impression was that of a relatively normal neurologic evaluation, and all laboratory evaluation was within normal limits.

Medically he appeared somewhat younger than his stated age. He exhibited essentially the same behavior as that noted during the neurologic evaluation. He was afebrile with pulse 68 and regular, respirations were 20, and blood pressure appeared within normal limits. He appeared in no acute distress. The general physical examination was unremarkable except for very slight clouding of the left tympanic membrane. Routine laboratory evaluation showed no abnormalities. Psychiatric consultation and observation noted a diagnosis of Early Infantile Autism.

Family Assessment

During these initial 2 weeks, the social worker and psychologist conducted a 2-hour interactional assessment of Mr. and Mrs. H. and D. This was done in their home setting and consisted of approximately 1 hour of unstructured interactions (including meal preparation and the dinner hour) and 1 hour of structured activities the parents were asked to do with D. The parent-child interactions were coded by both observers. The results of this interactional assessment paralleled D.'s behavioral baseline conduct at the PPNIC quite well. D. was definitely more aggressive in his home setting, and he was 12% more compliant for his father than his mother.

This assessment also detailed specific ways the parents approached D. when they wanted him to comply, and their reactions to compliance, noncompliance, and other disruptive behaviors. The results showed that 97% of the parents' directives to D. were clearly stated commands. The other 3% consisted of bribes used to gain compliance. However, when D. complied, he was only reinforced 6% of the time. Eighty-three percent of the time the parents did not acknowledge the compliance; and 11% of their responses were repeats of the initial command. When D. was noncompliant to their directives, Mr. and Mrs. H. repeated the command 79% of the time; 16% of their reactions were threats to comply;

and 5% of their reactions consisted of not responding to the noncompliance. When D. engaged in aggressions, temper-tantrums, or bizarre stereotypic behaviors, the parents' responses were generally raising their voices and giving D. directives. They never gave D. a time-out for such behaviors. This assessment gave the staff specific information on the parent-child interactions in order to design the training sessions to meet their needs. It also served as a baseline which could be used to evaluate the effectiveness of the parent training program.

TREATMENT GOALS

With the behavioral and multidisciplinary initial assessment completed, and the initial list of problems identified by the family, school system personnel, and County Human Services Board representative, the PPNIC staff compiled an initial list of the specific treatment goals. These goals included:

I. Reduce disruptive behaviors
  A. Noncompliance
  B. Aggressions
  C. Temper tantrums
  D. Bizarre mannerisms or stereotypic behaviors
II. Teach socially appropriate behaviors
  A. Compliance
  B. Play skills
  C. Eye contact
  D. Language expansion
  E. On task behavior
  F. Self-care skills
    1. Appropriate toileting
    2. Fine motor dressing skills
    3. Meal manners
  G. Social skills
  H. Classroom behaviors
  I. Preschool academic skills
  J. Generalization of skills to community settings
III. Parent training (including the older siblings)
IV. School placement and teacher training
V. Training of County Human Services Board social worker

In addition, baseline data had been collected on most of the above goals, except for teacher training and agency training. The various disciplines also had sufficient data to indicate short-term goals, specific strengths, and some potential problem areas.

However, the staff did not know all the tricks D. would play and testy behaviors he would engage in to make the treatment process more challenging.

TREATMENT

Behavioral Programming

After D. had been at the PPNIC for 2 weeks, baseline was complete, and the first phase of treatment began. Compliance was the first behavior to be dealt with because it had been found with other children to be necessary in order to teach other skills. D.'s basic cooperation, and desire to comply to an adult's directions, would be necessary in order to teach him to increase his self-care skills, play skills, and other socially appropriate skills.

The first approach used to deal with compliance consisted of using only positive reinforcement. Throughout the day, whenever the staff observed D. engaging in any appropriate behavior, they would spontaneously reinforce his behavior. This was done to establish a positive, pleasant environment. In addition, successful compliance trials were reinforced. The staff always gained D.'s attention by calling his name prior to giving him a command to do something. Sometimes they had to physically approach him and call his name several times. Then a carefully worded command was stated. No commands included two-part or three-part commands (the specific guidelines as to what kinds of commands could be given were presented in the baseline section). D. had 5 seconds to begin to comply to the command. While complying, if he was off task for 2 seconds it was considered a failure. He was expected to complete the task. Every time D. was successful in complying, he was given exaggerated and specific praise. He was told exactly what he did correctly. Edible reinforcers were also given initially for every compliance. Small pieces of dry cereal, raisins, peanuts, and water were used as edibles. Noncompliant responses were ignored. D. initially became 42% compliant with this treatment. After 5 days of treatment, and nearly 2,500 trials, D. remained 38% compliant.

The second phase of the treatment program began. The positive response to compliance remained the same. However, whenever D. was noncompliant to the command (*i.e.*, did not begin to comply within 5 seconds, was off task for two consecutive sessions, or did not complete the task), D. was placed in a quiet room for 2 minutes. D. was told specifically what he failed to do prior to being directed into the quiet room and again when he was removed from the room 2 minutes later. The compliance command was then given a second time and successes were praised and failures resulted in another quiet room. D.'s compliance jumped to 82 percent the first week of this treatment; further increased to 86 percent the second week; and remained above 86 percent for the entire duration of D.'s treatment at PPNIC.

After receiving quiet rooms for non-compliance for two weeks at MMHI and one week at home, D. began to receive time-outs for non-compliance on January 10th. He was instructed to sit on the floor, facing a wall, for one minute. Initially he could scream, kick, hit or do almost anything during his time-out. He was only expected to keep one buttock on the floor and not slide, lay down or roll over. If he met this criteria, his time-out was considered successful and he received praise for taking a good time-out. Once again, the praise was specific and he was told exactly what he had done correctly.

If D. did not take his time-out successfully, D. was instructed to go into the quiet room for two minutes. He was told specifically why he received a quiet room as he entered it, and again when he was taken out of the quiet room. Every day each time-out and quiet room D. received was counted and a percent of successful time-outs was calculated.

Initially D. successfully took only 42 percent of his time-outs. However, by the end of the first week of receiving time-outs, D.'s success rate was 81 percent.

The time-out/quiet room program, designed to teach children like D. to take an acceptable time-out from reinforcement when instructed to do so, consists of 12 shaping steps. Initially the expectations are minimal, but the more advanced steps require a child to control inappropriate, attention seeking behaviors while receiving a time-out. The final step (number 12) is an overtrain step which is often used prior to discharge. Because there is generally a certain amount of regression just after discharge, the time-out program attempts to overtrain the child for this regression.

The following is a list of the shaping steps and the dates on which D. moved to each step.

Shaping Steps

Date		
12/20	Step 1	Two minute Q.R. Staff brings child to the quiet room.
1/10	Step 2	One minute T.O. Staff walks with child to position (facing a wall), points to location for T.O., states "T.O. here" and puts the child into position. The child must keep one buttock on the floor. He cannot slide, lay down, or roll over. He may turn around.
1/24	Step 3	Same as number two except staff walks with child to location, points to location for T.O., says "T.O. here."
1/31	Step 4	Same as number three except staff indicates location by pointing and saying "T.O. here." Child may not throw objects, kick objects, dump things, or tear or break objects on the way to the time-out.

2/21	Step 5	Same as number four except child must keep his legs crossed. He may not turn his body around during the time-out.
4/16	Step 6	Same as number five except child should put his hands on his legs. He can move his fingers and can move his hands up or down his legs. He cannot take his hands off his legs. Palms must remain down.
–	Step 7	Same as step six except child must keep his hands on his knees.
4/30	Step 8	Same as step seven except child may not aggress (regular aggression definition) on way to T.O.
5/7	Step 9	Same as step eight except staff only indicates location by pointing. In addition, the child must keep his/her mouth quiet during the time-out.
8/3	Step 10	Same as step nine except child's head must be held up, and cannot rock his/her body.
–	Step 11	Same as step ten except child cannot have any temper tantrums (standard temper tantrum definition) on way to the time-out.
–	Step 12	Same as step 11 except that the child may not have any repetitive behavior (defined as occurring two times in 5 seconds) during a sitting time-out or have body movement.

You will note that D. moved through the beginning steps of this program quite quickly, that step 7 was skipped (as D. was meeting that criteria while on step 6), that there were problems with steps 5 and 9, and that D. never reached steps 11 or 12.

The problems with step 5 were analyzed because D. was only taking about 40–45% of his time-outs for about 2½ weeks. The analysis indicated that D. was failing step 5 primarily because he was unfolding his legs a few seconds after the time-out began. At the same time, he was turning towards the staff member, giggling, and saying "I get Q.R. now, I get Q.R. now." It was also noted that this occurred just following the admission of a very hyperactive, disruptive girl. At the same time D.'s compliance did drop some and he began more inappropriate toileting (*e.g.*, urinating in his dresser, smearing feces in the Q.R. box, etc.).

A special token program was established on 3/15 which consisted of token reinforcers every 20 minutes if D. had no Q.R.'s. (Since D. had experienced token programs in his language programming, he knew that a token would result in a "goodie" later.) Every hour, the tokens were exchanged for a special reinforcer of D.'s choosing. The number of tokens needed for the reinforcement and the time interval (1 hour) were gradually altered as D. began to improve his rate of successful time-outs. This token program was successful and was implemented for the entire duration of D.'s treatment at the PPNIC.

The problem with step 9 was a result of D.'s incessant chattering during time-out. This was very difficult for D. to learn to control. He also began to say cute sayings during his time-outs which did result in gaining the staff's attention. Once the staff analyzed the reason for his failures on step 9, they began to change their reactions to his cute sayings, and gradually and slowly, D. began to take more successful time-outs.

Other Behavioral Programming

After D. had been receiving time-outs for 2 weeks, and had been receiving treatment for compliance for over 1 month, he began receiving time-outs for inappropriate behaviors in the classroom setting and on the unit. The list of defined inappropriate behaviors included many things which were potentially dangerous (*e.g.*, touching electrical outlets) as well as behaviors which are generally not tolerated by parents or teachers (*e.g.*, climbing on tables). Prior to receiving time-outs, the appropriate behaviors had been rehearsed and reinforced. However, D. still engaged in these behaviors 24 times per day. These behaviors quickly dropped to a frequency of 2.3 per day.

Temper Tantrums. On January 31, treatment for temper tantrums was initiated. Temper tantrums included acts of aggression directed at himself or objects as well as yelling, screeching, and the other behaviors specifically listed in the baseline definition. Prior to treatment of temper tantrums, D. was 93% compliant and was only receiving eight to nine time-outs per day. The frequency of D.'s temper tantrums had dropped from 153 to 62 incidents in 4 hours prior to treatment for these specific behaviors. The treatment consisted of spontaneous reinforcement for behaviors incompatible with temper tantrum behaviors and a time-out for each temper tantrum incident. During the first day of treatment, D. had 104 time-outs. This greatly alarmed the staff, so they monitored when each temper tantrum was occurring during the second day. However, D. received 25 time-outs during the morning and only eight time-outs in the afternoon and evening hours, for a total of 33. During the third day of treatment, D. received 24 time-outs. Within one week, D. was receiving a total of only 15 time-outs per day. The frequency of D.'s temper tantrums ranged from one to a total of 16 per day during the remainder of his stay at the PPNIC. Most of D.'s remaining temper tantrums consisted of whining when he couldn't have his way, and occasionally kicking tables when angry.

Aggressions. On February 28, treatment for aggressive behavior was initiated. Aggressions included only behaviors directed toward other people as defined in the baseline list of aggressive behaviors. Prior to treating aggressions, the frequency had dropped from 64 incidents in 4 hours to 33 incidents. Within the first week of treatment, aggressions decreased to 11 incidents, and within the first month, to 1.2 incidents per 4 hours. The nature of D.'s aggressions also changed. Initially D. hit children, kicked staff, and grabbed their hair during a temper tantrum. Once treatment began, D.'s aggressions became low level aggressive acts, such as taking a toy from another child or accidently kicking someone while eating at the same table. D.'s aggressive behaviors also changed in frequency and intensity in his home setting (discussed in the parent training section.)

Bizarre Mannerisms (Stereotypic Mannerisms). Bizarre behaviors that were interfering with D.'s ability to stay on task or made him look unusual were primarily handflapping, finger flicking, twisting/twirling objects, rubbing, and putting objects in his mouth. Because of the potential medical problems if D. were to swallow a tack, pin, or crayon, D. was first treated for putting inappropriate objects in his mouth. He was reinforced when he picked up tempting objects and used them appropriately. He was also timed-out for putting them in his mouth. The treatment effect was excellent.

During the summer months, the other bizarre behaviors were treated with reinforcement for incompatible behaviors and a time-out for the specific mannerisms. All bizarre behaviors greatly decreased in frequency; however, D. substituted finger snapping when treatment for finger flicking was initiated. As soon as this occurred, D. was treated for finger snapping also. None of these behaviors decreased to zero; however they all decreased so that they were not interfering with D.'s ability to learn nor were they making him look unusual.

Socially Appropriate Behaviors.

Eye contact. Following the period of baseline, eye contact and independent play programs were initiated. The goal of the eye contact program was to increase the frequency of times D. would look at the eyes of a staff member when his name was called as well as to increase the duration of his eye contact. This has been found to be a necessary skill in later programs of language expansion. Initially, when the program began, D. was only expected to glance at the staff member's eyes within 2 seconds of his name being called. The staff member had positioned himself 1 foot away from D.'s face during these sessions of 25 trials. Four eye contact sessions were conducted daily for a total of 100 trials per day. If D. met criteria (glanced within 2 seconds), he was specifically reinforced and given a special edible reinforcement. If he failed to glance, the response was ignored, and another trial was conducted after a 10-second pause. In order to move from one shaping step to another more advanced shaping step, D. was expected to be 85% successful for three consecutive sessions. The shaping steps of the in-session eye contact program were as follows:

Shaping Step	*Criteria*
1	glance at 1-foot distance
2	1-second look at 1-foot distance
3	2-second look at 1-foot distance
4	3-second look at 1-foot distance
5	4-second look at 1-foot distance
6	5-second look at 1-foot distance
7	5-second look at 3-foot distance
8	5-second look at 5-foot distance
9	5-second look at 10-foot distance
10	5-second look at 15-foot distance

D. made excellent progress through the eye contact program. At the time of his first 3-month "Evaluation and Planning Conference," he was averaging 74% success on step 9 of the in-session program. D. really enjoyed the eye contact program and often requested that the staff conduct the program by saying, "Do eye contact now? Please? Do eye contact now? Please?"

Following the successful completion of this in-session eye contact program, an *in vivo* program was initiated. This program was designed to help D. generalize his skill to a more normal and practical environment. It also incorporated language questions and responses while it maintained the eye contact.

At the time of D.'s discharge in early September, he had 92% success on the eye contact and 84% success on the language requirement of step 8 of this *in vivo* eye contact program. The shaping steps and expectations are listed below:

Step Number	*Step Description*
1	Staff stands between 1 and 5 feet from child. Child must look for 5 seconds.
2	Staff stands between 1 and 10 feet from child. Child must look for 5 seconds.
3	Staff stands between 1 and 15 feet from child. Child must look for 5 seconds.
4	Staff stands between 1 and 15 feet from child. After 2 seconds of eye contact, staff says 3- to 4-word phrase which specifically reinforces child for appropriate behavior at the time of the trial (*i.e.*, "nice sitting," "good playing with toys," "nice keeping

shoes on"). Child must continue looking until staff completes the trial.

5 Same as step four except that full sentences are spoken and the staff begins speaking after the child's name is called. (Example: "you're sitting quietly on the rug," "you're doing a fantastic job eating").

6 Staff stands between 1 and 15 feet from child. After calling the child's name, staff asks one of the questions listed below:
  a. What's your name?
  b. What are you doing?
  c. Where do you live?
  d. How old are you?
  e. Are you fine?

Child must continue looking while staff asks the question and child gives criteria response.

7 Same as step six except staff asks one of the questions listed below:
  a. Where are you?
  b. What do you have?
  c. What's my name?
  d. What do I have?
  e. What do you do with (*object*)?

8 Same as step seven except staff asks one of the questions listed below:
  a. What did you do in school?
  b. What did you have for (*meal*)?
  c. What are you (*boy/girl*)?
  d. What am I doing?
  e. Yes/No questions (*i.e.*, "Is it cold outside?" "Are you sitting down?")

9 Same as step eight except staff asks child any appropriate question, not necessarily those listed above (*i.e.*, family member's names, weekend activities, weather, etc.).

Independent play. D.'s success with his eye contact program far surpassed his progress in learning to play independently with toys. A very structured independent play program was initiated just following the baseline period. Initially the sessions were only 10 minutes in length. Three sessions were conducted per day. The first 5 minutes of each session included a staff member modeling appropriate play with a toy (*i.e.*, stacking blocks, putting a puzzle together, putting pegs in a board). While modeling, any appropriate play by D. was enthusiastically reinforced by the staff.

Following the 5 minutes of play modeled by the staff, D. was expected to play independently and appropriately with the toy. If he played appropriately for 10 seconds, he was specifically reinforced and then again instructed to play. If D. played inappropriately, looked away for 5 seconds, or stopped playing for 5 consecutive seconds, it was considered a failure, and D. was redirected to play again. When D. was 85% successful in playing for three consecutive sessions, he was moved to the next shaping step of the program. The shaping steps of the independent play program were as follows:

Step	*Criteria*
1	10 seconds for 5-minute session
2	20 seconds for 5-minute session
3	30 seconds for 5-minute session
4	1 minute for 10-minute session
5	2 minutes for 10-minute session
6	3 minutes for 15-minute session
7	4 minutes for 20-minute session
8	5 minutes for 20-minute session
9	7 minutes for 20-minute session
10	10 minutes for 30-minute session
11	15 minutes for 30-minute session
12	20 minutes for 30-minute session
13	30 minutes for 30-minute session

D. did very well on the first step of the program. However, on step 2, he continued to play successfully during only 40% of the sessions for nearly 2 weeks. D. was failing primarily because he would stop playing when staff members entered the room, walked near his table, or even glanced at him. He then would get up and try to get the staff member's attention. D. also failed because he would begin to twirl and spin the toy rather than play appropriately.

The independent play sessions were held in a room with less distractions for a period of 2½ weeks. This increased D.'s success to 88% on step 2. Sessions were then held in the day room, and after 1 week D. was 86% successful on step 2. He was moved to step 3 and soon was moved to step 4.

Another problem that occurred was D.'s attempting to talk with staff during the session and his twirling of toys. When he began receiving time-outs for twirling/twisting objects in June, he also received time-outs for this behavior during the independent play program. This resulted in more appropriate play and some beginning success with staying on task for a longer period of time; however D. was still only 57% successful on step 5.

Because time-outs had proven to be so successful in decreasing D.'s testy, manipulative behaviors, and D. was now very capable of playing appropriately with toys, the time-out procedure was initiated for independent play failures. At the time of discharge, D. was 87% successful on step 10 of this independent play program.

Language Programming

Sessions were conducted 5 days a week for approximately 45 minutes per day. All therapy was administered in group sessions conducted in a classroom at the PPNIC. The therapy group included three children all diagnosed autistic and severely language delayed.

The language intervention program stressed stimulus shift labeling and syntactic chaining using a variation of the rebus reading program. Specific generalization procedures for stimulus and environment were formulated.

Program Paradigms: Noun Identification. The goal of this training sequence was to establish receptive identification skills for commonly encountered environmental objects. Items trained in each training set of eight to ten items were selected from categories of agents and objects including clothing, food, eating utensils, grooming utensils, furniture, household appliances, commonly encountered animals, and commonly encountered environmental objects (*e.g.*, sidewalk, tree, grass, etc.). Each training set included an item from each category when possible. Step 1 required one object to be placed before the subject. The command "touch _____ " was given. Failures received prompts and models. In step 2A a second object was added to the stimulus array. The subject was given the command to touch the first trained item on three consecutive trials and then to touch the new item on the next three consecutive trials (after each presentation object position was randomized). In step 2B stimulus presentation was completely randomized. In step 3A a new item was added to the array. Three consecutive trials were devoted to the new stimulus, and the next two trials were presented randomly for the previously trained items. In step 3B all stimulus presentations were once again randomized. This procedure continued until all items within a training set had been acquired. Daily data were taken on a probe of all items in the training set. Stimulus generalization was completed using a procedure described in which different sizes and colors of the stimulus trained must be identified. Final stimulus generalization was established using rebus pictures to represent trained objects.

Noun Labeling. The goal of this training sequence was to establish generalized labeling skills. A variation of stimulus shift described by McLean (1967) was used. Step 1 of this program required a simple imitative response utilizing a picture as stimulus (this is a spoon, you say spoon). Step 2 required production of a label in response to the stimulus presented in step one (this is a _____). In step 3 stimulus shifted to a rebus picture representing the training item. The response remained identical to that produced in step 2 (this is a ______). Step 4 required the subject to supply a label after the presentation of the rebus picture paired with an intraverbal cue (you eat with a ______). Eight nouns were trained in a paradigm of concurrent trials.

Association. After a criterion was established for each set of training nouns, the subject was placed in a noun association program. Three pictures were placed in front of the child. One of the three items had been previously trained in the noun labeling program. The clinician pointed to the previously trained item as he asked, "What goes with this?" If a child did not make the appropriate association, a prompt and model were supplied by the clinician. After the child met criterion for a given item in the noun association program, that item was placed in a noun labeling program, if the child was unable to spontaneously provide a label.

Verb Identification. Verb identification skills were established using a shifting stimulus paradigm similar to that used in the noun labeling program. Actions chosen included those which an institutionalized child might frequently see and those which were most easily represented. In step 1 the clinician placed two picture stimuli in front of the subject. The subject's response was to point to a picture representing the appropriate action named. In step 2 two dolls performing different actions were placed in front of the subject. The subject's response consisted of pointing to the appropriate action represented by one of the dolls upon a verbal request from the clinician. In step 3 the clinician placed one doll before the subject. The clinician named an action. The subject's task was to manipulate the doll in the appropriate action.

Verb Labeling. After criterion had been established for a set of items in the verb identification training sequence, those items were placed in a training sequence of verb labeling. In step 1 the subject was presented with the verbal command, "D., I stand." Simultaneously, the clinician stood and said, "What am I doing?" In step 2 the subject was shown a picture representing an action verb trained in step 1. Paired with the picture presentation was the question, "What doing?" In step 3 the clinician manipulated a doll into a previously trained action. Paired with the positioned doll was the question, "What's doing?"

Syntactic Chain Identification. Identification skills for multiple syntactic combinations were programmed similarly to noun and verb identification programming. Picture stimuli were initially utilized in step 1. In step 2 established skills were generalized, requiring the subject to appropriately manipulate dolls to coincide with the verbal syntactic model provided by the clinician.

Adjective + Noun Identification and Labeling. Color adjectives were trained in combination with previously trained agents and objects. It was necessary to individually train some color identification and labeling, although the subject initially pretested at 100% on the colors red, green, blue, yellow, and black. Identification and labeling programs for adjective + noun combinations were trained in a program identical to noun + verb identification and labeling.

Syntactic Chain Lableing. This sequence of training involved training noun + verb, noun + verb + object, and noun + verb + adjective + object constructions. To facilitate labeling skills, rebus pictures of individual components involved in the syntactic construction were used as visual cues. The subject was shown a multiobject picture of a boy walking. Below the multiobject pictures were the rebus pictures of boy and walk. The clinician said, "The boy is walking." The clinician then pointed to an individual picture of walk and said "walk." The clinian then said, "your turn" as he pointed to the first picture of the boy. As the client produced the appropriate verbalization, the clinician then pointed to walk. In step 2 the clinician's verbal prompt was eliminated as a stimulus cue. In step 3 the rebus cue picture was eliminated from the stimulus array. In step 4 all verbal cues and rebus picture cues were eliminated. Similar programming was used in other multicomponent labeling programs, with N+V+O programming requiring five steps and N+U+adj+O requiring six steps.

Results of Language Program. Results for noun identification and noun labeling showed that after 21 sessions D. had acquired and demonstrated stimulus and environmental generalization for ten nouns. Concurrent training on the initial eight items after session training was completed. After an additional 48 sessions, D. had acquired labeling skills for the ten nouns and had demonstrated stimulus and environmental generalization. Association programming revealed that although D. had been trained to recognize a stimulus item, he was unfamiliar enough with its function to identify objects associated with the trained item. Associative skills for the trained nouns were brought under stimulus control after 15 sessions. Verb identification skills were the most difficult to establish and generalize, requiring 39 sessions to establish and generalize identification skills for six verbs.

Syntactic chaining skills for noun and verb constructions were established and generalized after 20 sessions. Three word constructions were established and generalized most rapidly, requiring 16 sessions. Four component constructions required approximately the same number of sessions to establish and generalize N+V+adj+O as the other two syntactic sequences combined.

Upon completion of environmental training, informal spontaneous checks indicated that the subject continued to use learned vocabulary. After eye contact environmental generalization of syntactic strings, it was noted that the subject began to apply the rule of N+V, N+V+adj+O to many spontaneous utterances.

The subject's parents have instituted language programming on each syntactic step described in the home and report excellent environmental generalization.

Occupational Therapy Programming

D. was seen in occupational therapy 4 days per week by the therapist for 30-minute individual sessions. In addition, an appropriate toileting program was written, and his toileting program was monitored daily by the therapist. A meal manner program was developed and carried out by the unit staff. It was monitored on a bi-weekly basis by the therapist.

Gross Motor Programming. There was limited programming done in the area of gross motor development as D. had few deficits in these skills. His occasional toe walking at the time of admission disappeared around the third month of admission with the use of only reminders when he was observed to toe walk. At the time of discharge, D. functioned close to his age norm in gross motor skills. He could walk, run, skip, and crawl with no difficulty. He could stand on one foot momentarily, stand on his toes and balance, and squat down and pick up something from the floor without falling. D. could walk up and down stairs alternating feet, run without falling, and stop quickly while running. He could roll and throw a ball accurately and catch a large ball with arms extended. D. could kick a ball on command.

Fine Motor Programming. D. was on numerous programs designed to improve his fine motor skills. Some of these included the Fairbanks-Robinson program (level 1) for perceptual motor development (lines, coloring, and cutting exercises), the Marianne Frostig Worksheet (figure-ground and spatial relationships), and a fine motor imitation program. Each skill taught was broken down into small steps and taught in a reverse chaining order. A physical prompt was initially used in the programs and was gradually faded out.

The following are two representative samples of such programming shaping steps:

Coloring: Treatment will consist of the following shaping steps:

Step 1: Place crayon in child's dominant hand in proper three point position. Physically assist child in scribbling strokes on paper.

Step 2: Step one without physical assistance in scribbling. Child must scribble on paper only.

Step 3: Place crayon on desk at child's midline. Child must grasp crayon correctly and scribble on paper without assistance.

Step 4: Child scribbles inside plastic stencil and does not color on stencil or other areas of the paper or table.

Step 5: Child is physically prompted to outline a simple large shape presented to him (square, circle, rectangle, oval, diamond, triangle) and to color it inside the lines. Strokes should be light, not heavy, and should leave only a minimal amount of "white space."

Step 6: Step 5 without physical prompt.

Step 7: Staff presents a simple shape (see step 5) and draws a wide line down the center, dividing it in half. Staff outlines and colors one-half in color A, then outlines the other half with color B. The child must color "inside the B lines."

Step 8: Staff divides shape and outlines both halves as in step 7, but child must color in both sections independently.

Step 9: Staff divides shape as in step 7, but child outlines and colors in each section independently.

Step 10: Child independently outlines and colors in a two-part picture such as an acorn).

Step 11: Step 10 with a three-part picture. Use physical prompting if necessary.

Step 12: Step 11, four-part picture.

Step 13: Step 12, five (or more) part picture.

Step 14: Step 13 without outlining sections. This step may be omitted at staff's discretion.

Step 15: Child is presented with coloring book designs of increasing complexity.

Reinforce any successful trial with edible and social praise.
Rehearse failures and verbally praise successful rehearsals.

Fine motor imitation.

A. *Treatment:* Position the child at the table. Place materials needed (paper, pencils, crayons, blocks) in front of the child. Say "do this" and complete the task you would like the child to imitate (per shaping step). If the child imitates the task, provide social reinforcement on a one-to-one schedule and edibles on a variable schedule.

If the child does not imitate the task, physically prompt the child to do the motion.

Wait 10 seconds between trials.

B. *Count:* If the child imitates the task, count as a trial/success.
If the child does not imitate the task, count as a trial/failure.

At the time of discharge, D. was able to perform the tasks given to him on a 2- to 3-year-old level and some at a 5-year-old level. He was able to replace a circle, square, and triangle into a form board and match the colors. He was able to imitate a vertical and horizontal line, a circle and a cross with a demonstration, and was able to draw a vertical line in a circle upon command, using the correct grasp. D. was also able to distinguish the longer of two lines. He could snip independently with scissors and with verbal prompting could cut along a straight line. He was unable to cut out a straight-edged figure or a circle. D. had no difficulty building a tower of eight 1-inch cubes, or imitating a train or a bridge of three 1-inch cubes. He could easily string both 1-inch and ½-inch beads and use the desired two to three point prehension patterns while manipulating small objects. D. was able to work both a simple and a multiunit puzzle with no difficulty. He was able to color a two-part picture, matching the appropriate color, but occasionally went outside of the boundaries, and required redirection.

Self-Care Skills

Reverse chaining, numerous shaping steps, specific reinforcement, and modeling and prompting D.'s incorrect responses were used for the dressing and undressing programs. With the use of these techniques and daily programming every morning and evening, D. learned to become more independent in this area. At the time of discharge, D. was functioning on a 3-year-old level in the area of self-care skills but could perform some skills on a 5-year-old level. D. was able to remove and replace most articles of clothing and could distinguish between the various articles. He only required minimal direction in the entire process of dressing and undressing, with the exception of some fine motor skills.

He also showed improvement in the fine motor skills involved in dressing. He was able to independently unbutton, zip and unzip, lace and unlace, and untie. He remained unable to manipulate snaps, buckles, and hooks and eyes, and could not tie a knot or a bow.

D.'s meal behaviors and eating skills improved to a great extent during his stay at the PPNIC. He learned how to use his fork correctly to eat with as well as to cut soft foods. He also engaged in less inappropriate meal behaviors while eating. At admission, he exhibited between 14 and 16 inappropriate behaviors during a meal. At discharge, D.'s inappropriate meal behaviors had decreased to a frequency of 1.2 per meal. Inappropriate meal behaviors included such things as stealing food from staff or peers, dumping food or liquids, throwing food, banging utensils, and spitting food out. These were treated with a time-out and positive reinforcement of incompatible behaviors.

D.'s inappropriate toileting behavior was eliminated with the use of a toilet regulation program that reinforced him for productions in the toilet at regular intervals. Special reinforcements (*e.g.*, riding the big wheels, riding the rocking horse) were used for bowel movement productions in the toilet. Initially, all inappropriate toileting was ignored and cleaned up in a matter-of-fact manner. These methods resulted in no inappropriate toileting in the home or on the unit for the last 7 months.

Social Skills

D. made many gains in the area of social skills while at the PPNIC. At the time of discharge, D. was functioning at about a 4-year level in social development. He was capable of making a choice and was usually willing to share with staff or peers. In dealing with adults, he successfully followed directions and was very responsive to approval and disapproval. He still had difficulty in handling some frustrations; however, he was able to demonstrate his frustrations by saying "I don't want to" rather than engaging in temper tantrums. He also had learned to appropriately seek an adult's attention and interrupt conversations by saying, "excuse me."

Educational Programming. The first educational goal was to teach D. appropriate classroom behaviors. A program was implemented which reinforced a specific list of behaviors incompatible with disruptive behaviors and which ignored all inappropriate behaviors. After 3 weeks, and a slight decrease in the frequency of disruptive behaviors, a time-out was used for the following behaviors:

Getting out of chair without permission.
Moving desks or chairs—this includes tipping or rocking either desks or chairs.
  Once the child is seated and in position at his desk, all other movements of desk or chair are counted.
Opening the cupboards.
Leaving play area without permission.
Touching data sheets or behavior notes on the child's desk.

These behaviors quickly decreased in frequency, and D. began making progress in his academic programming. Many of the language therapy and occupational therapy programs were conducted in the classroom setting by the special educator in order to provide more trials and encourage generalization.

At the time of discharge, D. could receptively and expressively recognize ten colors, did understand the concepts of matching objects, colors, letters, numbers, and words. He understood "same versus different." He could recognize his written name and could pick it out of a list of five names. He was unable to use a clock or calendar and did not understand *today*, *yesterday*, or *tomorrow*.

He also recognized the numbers 1–20 and could count to 18 at 88% success. He also understood number concepts through 9 (such as give me nine blocks).

D. also understood the prepositions *on, under, in, behind, beside, in front of,* and *over.* He had problems with understanding *between.*

Visual Perception Skills. The Frostig Developmental Test of Visual Perception was administered to D. He functioned on a 4-year, 3-month level on the test of Eye-Motor coordination. On the Figure Ground test he performed at a 3-year, 9-month level. On the Form Constancy test he functioned at a 3-year level. On the Position in Space test D. performed at a 2-year, 6-month level. In Spatial Relations he functioned at a 4-year level.

Medical Complications

In the third month of the hospitalization, D. was noted to have some slight deterioration in his behavioral responses, and this was correlated with a slightly increased temperature and signs of an upper respiratory infection. Decongestants were prescribed, and during the period that he received these medications he continued to show some deterioration in his behavior. This infection cleared without need for antibiotic therapy and all cultures were negative.

Parent Training

D.'s parents participated in the parent training sessions throughout D.'s entire stay at the PPNIC. In total there were 19 training sessions, 12 held at the PPNIC, five at Mr. and Mrs. H.'s home, one in a local restaurant, and one in a shopping center. D.'s older siblings, G., age 10, and S., age 7, attended sessions once per month during the school year and all sessions during the summer months. D.'s maternal grandmother attended one session in April and three sessions during the summer. The social worker from the County Human Services Board attended all sessions with Mr. and Mrs. H. except one session in late March. All sessions were conducted by the PPNIC social worker and a PPNIC registered nurse.

The first training session was held on Thursday, December 15th. D. had been at the PPNIC for 3 weeks, baseline was completed, and the positive approach in dealing with compliance had been implemented. The session consisted of 1 hour of familiarizing Mr. and Mrs. H. with D.'s program book, the format used for writing programs, basic social learning theory, spontaneous reinforcement, and the compliance program. The staff members demonstrated how to gain D.'s attention through role plays, how to give clearly stated commands, specific, enthusiastic praise, and what to do when D. was noncompliant. Because Mr. and Mrs. H. were already giving D. very clearly stated commands, most of the emphasis was on gaining D.'s attention and reinforcing positive behaviors.

The second hour consisted of Mr. and Mrs. H., G., and S. working individually with D. A staff member was with them assisting them in gaining D.'s attention, recognizing behaviors to reinforce, and implementing the compliance program. Much reinforcement was used to assist the family members in learning this new way of interacting with D. While this was occurring, the other staff member, family members, and community social worker were observing the interactions through a one-way mirror. The staff member was assisting the family members in identifying and counting each compliance trial, success, reinforcement, and spontaneous reinforcement.

The family left the training session with a good idea of the compliance program and lots of encouragement to assist one another as they tried to apply it to their daily interactions with D. on his weekend visit. They also were instructed to count their commands, compliance successes, reinforcements, and spontaneous reinforcements for 1 hour each morning and 1 hour each afternoon or evening during the 3-day visit.

The second training session was held 1 week later because of the upcoming Christmas vacation, and the need for consistency in programming during that extended period of time. The training session also consisted of 1 hour of discussion, review, and role modeling plus 1 hour of practice with D. This training session dealt with the quiet room response to noncompliance. The family had been expected to provide a quiet room in their home prior to this Christmas vacation so that the program could be implemented successfully at home. Not unlike most of the families involved in the PPNIC program, Mr. and Mrs. H. had an initial concern about this use of a quiet room for their son. They were somewhat hesitant to use it. Therefore, the pros and cons of various parental reactions to negative behaviors were reviewed with Mr. and Mrs. H., and the basic philosophy of removing a child from a positive environment when he engaged in unacceptable behavior was reiterated. However, as soon as Mr. and Mrs. H. saw the tremendous increase in D.'s compliance and saw him complying to staff's instructions, they became eager to see if they could get the same results.

The parents had problems initially learning the sequence of gaining D.'s attention, waiting 5 seconds for him to begin to comply, escorting him to the quiet room when he failed to comply, and telling him why they were putting him in the quiet room. Abbreviated crib notes were given the family so that they could quickly refer to this sequence when necessary.

The parents took data during the 9-day Christmas vacation on D.'s rate of compliance, number of quiet rooms per day, and two 1-hour samples of the frequency of their spontaneous reinforcement.

Ms. J., the County Human Services Board social worker, visited the H. home for a 3-hour session during the Christmas vacation. She assisted Mr. and Mrs. H. in perfecting their compliance interactions with D.

Mr. and Mrs. H. took data on every program they were trained on during all the home visits while D. was at the PPNIC. The reasons for this expectation of Mr. and Mrs. H., as well as for all families, were to help the family identify behaviors, to compare the child's treatment progress at MMHI and in the home setting, to give the family specific data taken in their home in which they could see their child's progress, and to take behavioral samples that could be compared with samples taken after discharge. The project had also learned that when family members counted their spontaneous reinforcement, the frequency of it increased.

Mr. and Mrs. H. were trained on all of D.'s behavioral programs (*i.e.*, time-out shaping, aggressions, and temper tantrums) during January, February, and March. They were also trained on the eye contact program during this time. The format for each training session was similar to the first two sessions, with 1 hour spent working with D. The general model for training consisted of training one program during one session and perfecting it during the next sessions. (D.'s siblings attended each session that included a new program.) All programs previously taught were also reviewed every session. Mr. and Mrs. H. were very quick learners and were able to modify their interactions with D. quite easily. D.'s older brother was also capable of implementing the behavioral programs very well. He wasn't taught the in-session programs because Mr. and Mrs. H. did not want him to play a "teacher's role" with D. D.'s sister, age 7, was too immature to carry out the behavioral programs. However, the parents encouraged her to spontaneously reinforce D. whenever he was engaging in appropriate behavior.

In late March, D. spent a weekend with his untrained maternal grandmother because the parents were unexpectedly called away for a family funeral. D. was extremely testy, noncompliant, and at times, very disruptive. The grandmother was very upset and distraught by the end of the weekend. When the PPNIC social worker learned about this problem, she encouraged the family to either train the grandmother themselves, or have her participate in the regular sessions. The grandmother, Mrs. L., agreed to observe one training session; however, she refused to become involved.

Mrs. L. did observe one session in early April. She expressed her concerns about D. and some of the things Mr. and Mrs. H. had learned to do with him. She did not think that he should be reinforced so frequently, as "good behavior" was just expected and not anything to praise a child for. She also questioned giving time-outs for low level behaviors, such as whining, taking a toy from someone else, etc. The baseline data and present data were shared with Mrs. L. In addition, basic learning theory was reviewed. Mrs. L. requested some written proof that this was the right way to treat her grandson, so some handouts on learning theory and treatment approaches with children with behavior problems were given to her. Although she refused to participate, she seemed impressed with the staff's openness, their ability to answer her questions, and her grandson's improved behavior. She also commented that he seemed so happy at the PPNIC and had become such "a nice young man."

During the summer months, Mrs. L. appeared at the family's home at the beginning of one of the training sessions. She stated that she came because she thought she should learn how to discipline and teach her grandson because his parents obviously believed in what they were learning. Mrs. L. was enthusiastically welcomed into the training session and was a very rapid learner. She was giving specific praise, identifying behaviors that should be timed-out, and following through with the time-outs by the end of the session. She said that she had been observing Mr. and Mrs. H. interact with D. for several months and, consequently, was able to learn it so quickly.

One other problem that was dealt with during parent training sessions was D.'s disruptive behaviors in community settings. The parents had not taken D. shopping or to a restaurant for nearly 2 years because they found his behavior so embarrassing. Mr. and Mrs. H. were taught the community outing program that the staff had been using with D. when they took him to shopping centers and special events in the community. They were given suggestions for modified quiet rooms in various settings should D. become testy and require one. After this discussion, the parents, staff members, and D. visited the local grocery store. D. started screaming and yelling right away, and Mrs. H. directed him to take a time-out immediately. Following the time-out, D. was very compliant and pleasant to be with. Mr. and Mrs. H. agreed to try taking him to a hardware store and shoe store that weekend. They had only minor problems with him during these two shopping trips, and they began to gain some confidence in their ability to handle him in the community. The parents continued to take D. shopping on their weekends, and even planned special shopping experiences during the next several weeks so that they could become even more confident and D. could have more opportunities to practice his good behavior.

Mr. and Mrs. H. were still uncomfortable with restaurant atmosphere, so a training session was held at a nearby family restaurant. The family and staff had discussed various problems they anticipated and the methods for handling them prior to the experience. D. did quite well as his table manners had improved so much and he had begun to learn to deal with frustrations and control his behaviors in community settings. The parents were encouraged to take D. to an informal restaurant on the weekend. They did take D. and their other children to a family restaurant on Friday evening and D. was excellent. He sat quietly, ate with good manners, and displayed no disruptive behaviors. The parents were ecstatic, so they took the entire family out for breakfast on Sunday morning. D. received two time-outs while waiting to be seated and one time-out for kicking his chair. The parents were concerned but decided to "stick it out" as they were already seated in a large dining area. The rest of the meal was a complete success.

These two dining experiences were the first times the entire family had eaten at a restaurant for over 3 years.

The remainder of the training sessions dealt with reviewing the behavioral programs and teaching Mr. and Mrs. H. D.'s language, toy-playing, and self-care programs. At the time of D.'s discharge, Mr. and Mrs. H. could skillfully implement all of the programs D. had at the PPNIC.

EVALUATION AND PLANNING CONFERENCE

During D.'s stay at the PPNIC, three evaluation and planning conferences were held. These were conducted at Mendota in February, May, and August. Mr. and Mrs. H., Ms. J., the County Human Services Board social worker, D.'s former teacher, the school psychologist, and the Director of Special Education from D.'s school district attended. All of the professionals involved with D. at the PPNIC also attended. The purposes of the conferences were to review D.'s behavioral, social, educational, and developmental progress; recommend any necessary program changes; and discuss with the school personnel their available resources. The conferences also consisted of a 30-minute observation of D. in his PPNIC classroom. This was done through a one-way mirror so it did not disturb the other children.

During the May conference, the school personnel expressed concern about how much change D. had really made. They had forgotten how unmanageable he had been those few months at the beginning of the school year. A baseline videotape taken during D.'s initial week at the PPNIC was shown during this conference. It was used as a tool to refresh everyone's memory as well as encourage the school system to try to accept the PPNIC treatment programs. It did provoke discussion, and the school personnel agreed that the treatment programs needed to be implemented in order to provide the best environment for D. However, they still expressed concern regarding where he could be placed and how the programming could be accomplished. The PPNIC transitioning teacher offered to visit any of their classrooms they thought might be feasible for placement and then make recommendations to the Director of Special Education. The school personnel were very receptive to this suggestion, and the visit was scheduled for the next week. It was also decided that Mrs. H. would visit the classrooms at the same time so that she could also make recommendations.

The PPNIC teacher and Mrs. H. visited three classrooms, one of which seemed like a possible placement. It was a class of nine educable mentally retarded children between the ages of 5 and 7 years. The teacher was already using positive reinforcement and two token programs. She was very receptive to learning new methods of dealing with behavior problems. The PPNIC teacher assisted the Director of Special Education in obtaining additional funds for a full-time classroom aide as she knew that it would be difficult for the teacher to implement the treatment programs and deal with the expected initial testy behavior with a total of ten children. After much negotiating with the State Department of Public Instruction, funding was acquired and a full-time aide was hired for the fall semester.

The new classroom teacher and aide attended the evaluation and planning conference held in August. They became initially acquainted with D., his treatment programs, and did view the baseline videotapes of D. During this conference, a discharge date of September 14th was established, and a school transitioning workshop was scheduled for September 11th and 12th.

SCHOOL TRANSITIONING

The primary goal of the school transitioning program was to insure that the behavioral changes D. developed at the Institute were maintained when he returned to the community. A secondary goal of this program was to facilitate the maintenance of preacademic and academic skills D. acquired in the Institute's classroom.

Teacher training began prior to discharge when D.'s community teacher and aide observed D. in the school program at the Institute. The purpose of the observation was to provide them with an opportunity to view D.'s behavioral programs and academic programs in operation. The community teacher became familiar with the type of expectations, limits, and consequences that were involved in his programs. In addition, D.'s particular characteristics, routines, likes, and dislikes were observed and discussed so that the community teacher could become familiar with the type of child that would be entering her classroom.

In addition to observing the child in the Institute classroom, the community teacher and aide were trained on all of the behavioral programs and academic (or preacademic) programs D. was presently involved with. Copies of these programs were discussed, role played, and implemented by the teacher and aide with D. at the Institute.

The community teacher and aide also became familiar with the previous programs D. had completed as well as the specific program revisions that were necessary for him. This allowed the community teacher to become familiar with the behavioral characteristics of D. prior to treatment, how he responded to various treatment techniques, and the amount of growth and progress he had accomplished with the specific programming.

Follow-Up

The PPNIC teacher made regular visits to D's classrooms for the first 8 weeks after discharge on September 14th. Initially, the visits were twice a week, then once a week, and finally every other week. The purposes of the visits were to continue training the behavioral and academic programs, to provide a familiar person in the school setting for D., to assist the community teacher in overcoming any problems in the implementation of the programs, to modify programs, if necessary, and to continue taking behavioral samples of D. in order to quickly identify any regression.

There were some problems initially with D.'s behavior in the new classroom. The second day in the classroom, D. urinated in his desk during free time. The community teacher knew that D. had previously had this problem, so she handled the situation very calmly and added that to her list of questions for the PPNIC teacher's next visit.

D. also spent one entire morning in the quiet room. He refused to come out. The teacher's aide called the PPNIC teacher and was able to learn how to handle this situation through a phone conversation.

Eight weeks after discharge, D.'s compliance was 92%, he had .5 aggressions per hour, 1.2 low level temper tantrums per hour, and nine bizarre mannerisms per hour. These figures very closely resembled his final behavioral counts during his last week at the PPNIC.

Three-month and 6-month follow-ups were also done in the school setting, and D.'s behavioral samples remained stable except for the frequency of bizarre mannerisms. Bizarre behaviors did increase to a frequency of 16 per hour at the 6-month follow-up visit. This was discussed with the community teacher at that time and she did admit that she had become careless in treating some bizarres such as twisting and twirling crayons. She recognized the increase in his bizarre behavior and decided to more carefully treat these behaviors and count the frequency of them on a weekly basis.

Follow-up with Mr. and Mrs. H. was less intense than with the school system. In order to provide consistent programming for D., Mr. and Mrs. H. were encouraged to bring their concerns to the school personnel. It was encouraged that any small program changes that either the family or school personnel felt were necessary were to be discussed with one another. The PPNIC staff's role became that of consultants to both the family and school. They also encouraged the family, and school personnel, to contact the PPNIC at the first sign of any concern or need for program changes.

The PPNIC staff did, however, visit the family every 6 months for follow-up research purposes. During these visits, a 2-hour parent-child interactional sample was taken. These samples were coded and scored like the first interactional samples completed just after D.'s admission to the PPNIC, the one done in mid-March, and a third one at the time of discharge. These interactional samples will be taken every 6 months for a period of 2 years. Presently, D. has only been discharged for 20 months, so only three follow-up samples have been taken.

Mr. and Mrs. H. continue to implement the behavioral programs. D. is presently very compliant with both his mother and father; he rarely aggresses or engages in bizarre behavior; he occasionally whines when frustrated. According to his parents, D. is usually a joy to live with. He does become testy at times and likes to have his father's attention as much as possible, but he is generally not disruptive to their family life. Mr. and Mrs. H. are also confident in their ability to manage his unique behaviors.

Ms. J., the County Human Services Board social worker, has continued to visit and assist Mr. and Mrs. H. on a monthly basis. She also initially spent many hours in the classroom setting. She presently attends school conferences and visits D.'s classroom when concerns arise. She has become a real asset to both the family and classroom teacher.

D. is presently 7 years, 10 months old. He has delays in social skills, language skills, and motor skills. He will always need special services in an educational setting and will probably need special training to live an independent (or semi-independent) life style. However, he is a joy to his family; they are confident in their interactions with him; he is not disruptive in a classroom setting; he is able to learn in an educational setting; and hopefully, this progress will continue so he can develop and grow to his potential.

9

Factors Affecting Therapeutic Effectiveness

Anytime one begins to talk about a system, one immediately becomes aware of the importance of all the numerous components of that system that create the balance or homeostasis. This chapter is an effort to look at what some of the key factors are that make a mental health delivery system work, or at least what the authors feel have been contributing factors to the success of the Project for Psychotic and Neurologically Impaired Children.

Initially, it may be helpful to describe the administrative structure of the project. Figure 9–1 illustrates the roles and administrative structure. Essentially there are two teams operating on a parallel schedule, each directed by a psychologist or social worker. Although the unit only services 15 inpatients at a time, the two-team structure allows the staff to become thoroughly familiar with only seven or eight children rather than with all 15.

Mondays are set aside as a "decision-making" day. Therefore, all meetings concerning weekly review of patient progress as well as administrative meetings and discussions regarding consultation experiences are held on Monday, leaving everyone's schedule available for a wide variety of activities during the week. This is also "communication" day, and all staff are scheduled to work. Rather than spending staff time each week in the laborious task of trying to coordinate work schedules in order to set up staff meetings, the project staff have set one entire day aside for the purposes of communication and staff training. No community trips, tours, parent meetings, or community conferences are scheduled for that day. Likewise, except in very rare situations, no staff meetings need to be scheduled on any day other than Monday. Thus, the project has a highly organized and structured mechanism for communication designed into it by con-

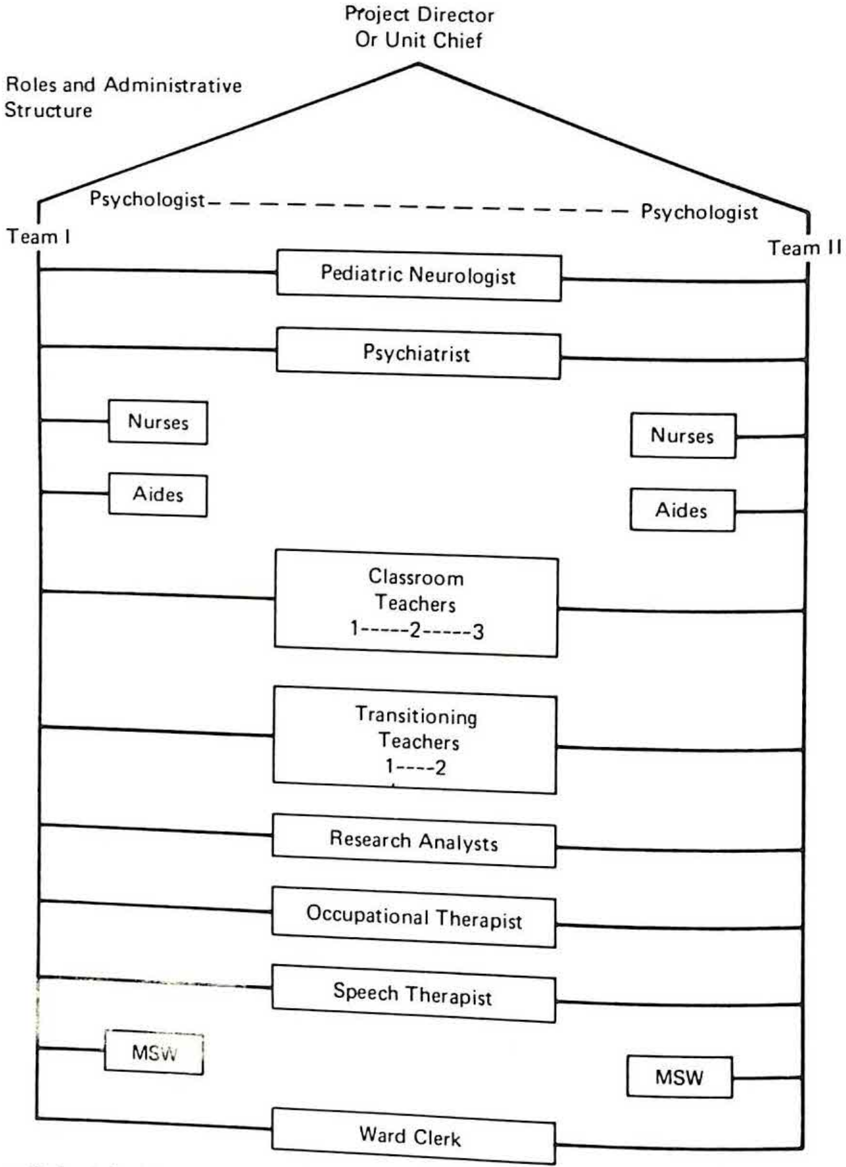


Figure 9-1. Administrative structure and roles in the Project for Psychotic and Neurologically Impaired Children.

ducting the following meetings on Monday:

Administrative meetings: Monday morning all professional staff meet between 10:30 and 11:30 A.M. Classrooms are covered by the child-care workers on duty. This is the time when the staff review and plan for the week, or several weeks, in terms of who will be responsible for specific community consultation requests; who will be providing training to staff and outside agencies; when conferences will be held to review with community agencies a given child's progress; and what preadmission conferences are pending and need scheduling. The Unit Chief delegates and determines who will be responsible for which activities so that workloads are balanced. All new project policies and procedures are determined at this meeting, and new Institute policies are reviewed and discussed. Any problems should be discussed at this time. This would include project problems, staff problems, as well as morale problems. Research proposals, the development of new programs, or new directions for the project would also be discussed at this meeting. All tours and visits by agencies are announced at this time so that everyone is aware of potential visitors. In summary, this meeting is the core meeting for the professional staff to suggest new ideas or relate problems they may be having. While this is a very open and expressive meeting, the Unit Chief maintains the responsibility for decisions made.

Subgroup meetings: The second important group of meetings focuses around the individual children being treated as inpatients on the project. These meetings begin at noon and are completed at 2:30 P.M. These multidisciplinary meetings are where all the individual cases are reviewed, current programs are discussed, and problem areas needing treatment plans are brought up for discussion. This group consists of the psychologist or social worker as the team leader, the child's classroom teacher, registered nurse, social worker, and the special child-care worker staff assigned to the child. In addition, as many child-care workers as possible are expected to attend and actively participate in the treatment planning. The language therapist and occupational therapist rotate teams every other week so their involvement is continuous but not weekly. This group typically makes the decisions regarding the details of each child's treatment for the next week. Figure 9-2 illustrates the subgroup structure.

Group rounds: From 2:30 to 3:30 P.M., all staff from both teams meet to make general announcements, such as introducing new staff or students or announcing upcoming tours of the unit. A summary of the professional staff meeting and each child's subgroup meeting is presented and clarified at this time. This time is also used for the transitioning teachers to report on follow-up of discharged children and other staff doing community consultation to share their activities with the group.

Inservice training: When the group rounds are completed, various inservice training sessions are conducted. These frequently are special signing classes, where the staff learn new signs from a consulting signing instructor. They may include the complete rewrite of a program or policy. Sometimes films are shown. Speakers may come from the community to talk about their program, or a public health nurse may speak with the staff about infectious diseases and good cleanliness policies. Sometimes, staff will become creative and present short skits as a means of emphasizing the uniqueness and need for individual sensitivity to certain children. This method is also used to train staff and to remind staff of the proper procedure for implementing specific treatment techniques. In

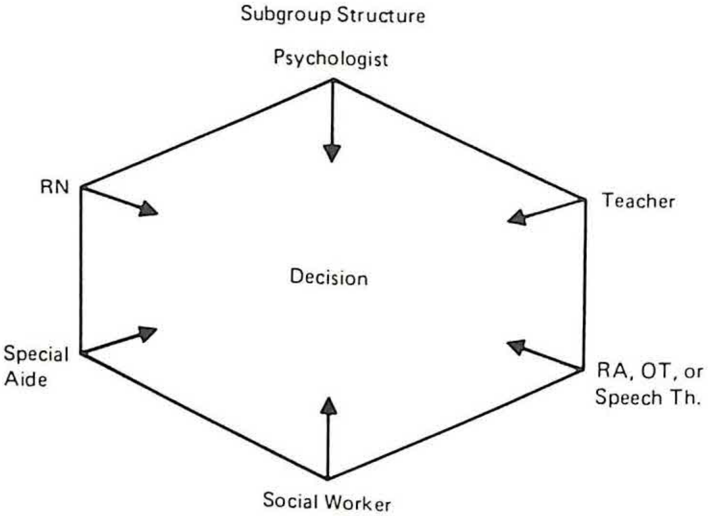


Figure 9–2. Subgroup structure in the Project for Psychotic and Neurologically Impaired Children.

general, 30-minute to 1-hour inservice training workshops are conducted on the first and third Mondays of every month. The workshops cover a variety of topics including writing treatment programs, behavior modification theory and techniques, data collection, treatment evaluation, and the PPNIC program policy. All staff attend these workshops.

For a 1-hour period on the second and fourth Mondays of every month, the staff are evaluated on their ability to implement the behavior management treatment programs. These sessions involve the staff observing another staff member and child from behind a one-way mirror and monitoring the child's behaviors. In this manner, feedback concerning each staff member's ability to recognize and count specific behaviors can be given directly and immediately. All staff attend at least one of these monitoring sessions each month.

Given this particular structure, each individual working on the unit has an opportunity for input regarding a child's treatment program. Child-care workers are encouraged to discuss problems and suggestions regarding certain children with the special staff assigned to the child as well as with the professional staff during the week. Staff are encouraged to be open and expressive about their feelings, and all receive a special workshop on assertiveness training in order to facilitate their ability to communicate. In addition, the authors have found that a child advocacy system has been quite effective in maintaining heightened interest in each child. The person referred to as special staff is given the responsibility to keep up with the child's daily progress, is expected to take a special interest in that child, organize the data, make suggestions about treatment changes in subgroups, and function as the co-therapist with the psychologist or social worker in parent-training.

STAFF TRAINING

Obviously, to function in such a capacity, a staff person needs to be well trained. The PPNIC provide all new staff members with an extensive training course, including weeks of training in the appropriate application of behavior modification as it applies to this group of children and this particular unit. No treatment programs are implemented without a methodology for evaluation, and staff enter the working unit with this bias. The PPNIC is a research, training, and community consultation project, requiring well-trained and competent staff to effectively provide therapy for the children as well as provide basic training for parents, teachers, and community agencies. The following describes the training program for all staff who work on the unit.

The initial training orientation conducted primarily by the PPNIC research analysts involves a 4-week period of intensive training. The orientation begins with a tour to acquaint the new staff to the unit. During the first week the basic philosophies of the PPNIC are discussed. Such items as explanation of shifts, daily schedules, and explanations of staff duties are delineated. Introduction to the behavioral management orders such as the compliance program, time-out shaping program, aggression program, temper tantrum program, and bizarre mannerism program completes the week. By the end of this week, the new staff have a global idea of what the PPNIC is, what kinds of children are treated, and what types of treatment procedures are used, as well as how they as staff fit into the overall organization.

Week 2 involves very intensive training on the behavioral management orders. This includes recognition of the behaviors and counting them. Reading, discussing, and reviewing of each of the management orders is complimented with videotape practice. The video system is designed to allow the new staff to count a prescored segment of tape on which a child displays referral behaviors. The latter portion of the second week involves video reviewing of all of the behavioral treatment programs and the introduction of the special treatment programs such as the eye contact program, independent play program, and sitting program.

The third week of training completes the training of the special treatment programs. During this training segment, the new staff receive an explanation and training on how to function as a shift coordinator, how to record data, explanation of the child's data books, proper graphing procedures, and methods for indicating step and program changes on graphs and data sheets.

During the final week of formal training, new staff members are expected to conduct the specific treatment programs of two children. They begin working with the children on such programs as eye contact, independent play, compliance, time-out, and language. They receive direct and immediate feedback on their performance by the research analyst as well as other staff members. As soon as they are able to handle the assigned children, other children are added until all are included.

The formal training procedure is completed by a 1-week follow-up session during which the trainers observe and discuss any problems and give additional feedback, including positive reinforcement for jobs well done.

A second focus of training is on nursing orientation. This section of the orientation is conducted by the head nurse and includes a discussion and explanation of unit and hospital policies, procedures for fire and tornado emergencies, injuries, and seizures. Medical information and precautions concerning specific children are communicated to each new staff member. The head nurse also informs the staff as to medical charting procedures, routine paper work and forms, utilization of phones and dictating procedures, as well as details concerning mail pick-up and the ordering of supplies. For nurses and aides, the head nurse describes the work schedules, vacation, and holiday procedures. Lines of authority and supervision are clearly delineated. This orientation occurs during the first 3 weeks the new staff member is on the project.

The head nurse is also responsible for the on-going training of aides, licensed practical nurses, and registered nurses. This is done through regular written evaluations, individual conferences, and group meetings. All new staff members receive informal feedback on a weekly basis. Formal written evaluations occur at the end of 2 months, 4 months, and 6 months of employment. Expectations for each new staff member are given at this time. Informal conferences concerning each staff member's performance including both relative strengths and weaknesses are held regularly. In addition, the head nurse conducts a weekly group meeting attended by the registered nurses, focusing on policy and procedure changes and methods of supervision. Any staff person is given direct and immediate feedback concerning exceptional or questionable performance.

It should be quite obvious that the training to work on such a unit is elaborate. This is necessary to assure consistency of treatment as well as for public relations purposes. All staff members need to be able to explain and illustrate an understanding of the theoretical and practical application of the program philosophy. Good organization and coordination is the key in making a program model such as the PPNIC work.

MAINTAINING POSITIVE MORALE

In addition to staff training, it is important for every administrator to be aware of and provide for reinforcement for their staff members. The usual methods of giving very good staff members large salary raises or extra vacation time are not available in many systems because of state regulations and personnel codes. However, the authors have found many methods of reinforcing good staff members, and preventing morale problems, that can be used in many systems.

The following are some of the specific methods the project administrators have found useful in working with the staff of the PPNIC.

Give staff positive feedback regarding their performance frequently and spontaneously.

Give competent staff members additional job duties or responsibilities, such as parent training experiences and community consultation experiences, that they are interested in and will help diversify their job.

Be sensitive to staff members who are tired, frustrated, or about to lose their temper by offering to give them a break or relieving them so they can do a less frustrating task for a period of time.

Promote a child advocacy system in which each staff member feels that he/she plays a special role with one or two children.

Provide staff members with opportunities to play an active role in the discharge planning and follow-up activities so that they can more clearly understand the transitioning process and see the benefits of the structured residential programs.

Design, implement, and maintain a good communication system so that all staff members have opportunities to express their concerns, problems, and suggestions.

Remind staff frequently about the excellent results of their work by discussing a child's progress, showing on a graph the amount of change that has occurred, or viewing a baseline videotape of a child who now is ready to return to the community.

While this book, and especially the chapter on the PPNIC, and the previous section of this chapter on inservice training have emphasized the importance of collecting reliable, objective data to determine ranges and growth in children and family, the authors have not spoken of this issue in the context of being meaningful for, or simply an element itself of, therapist effectiveness. Staff find themselves rewarded when they can objectively see changes in children. Frequently, changes are slow but continuous, and without objective data and graphing they would make the staff feel that the child is not improving. Only close and continuous monitoring helps the staff to see and appreciate small, but possibly very significant, growth spurts in psychotic and neurologically impaired children.

Although these brief suggestions may seem quite simplistic, the authors primarily want to emphasize that administrators need to be sensitive to staff needs and methods for improving working conditions and reinforcing staff members in order to decrease staff burn-out and morale problems. The authors strongly believe that staff morale is a major factor affecting therapeutic effectiveness in any clinical setting.

FLEXIBILITY

Although the PPNIC is a highly organized, structured program that strongly emphasizes providing a consistent environment for the children, the authors feel strongly that flexibility is a major factor in therapeutic effectiveness. Behavior modifiers often become very concrete, specific, and detailed in their treatment programming and perspective of situations. And, indeed, specific, detailed programming is needed in order for many staff members to consistently interact with a client. However, flexibility still remains a major component of a successful program such as the PPNIC.

Staff need to be able to thoroughly assess a child's needs, both behavioral problems that can be easily defined and counted, as well as emotional and even nurturing needs. Staff also need to be flexible in their interactions with families. Some families are highly educated and can learn at a very fast pace. Other families may need much additional support, understanding, and assistance in learning the methods of working with their child. The project staff have worked successfully with deaf families and illiterate families that other agencies refused to work with because they did not fit their "model." Flexibility in scheduling appointments with families may be necessary in order for a family to be able to participate in the treatment program.

Flexibility that really meets the needs of the clients, families, and community agencies involved must stem from a sensitivity, empathy, and ability to perceive the entire situation and possible solutions. It is not an ability that can easily be taught to staff members but rather an inherent quality and skill that the project staff seek in new staff members.

MATCHING STAFF VARIABLES

While the literature abounds itself with rhetoric about therapist variables, our practical, clinical experience over the past years in treating psychotic and neurologically impaired children has given us some helpful pointers in this area. At times, a certain staff member may actually find himself experiencing a dislike or even be disgusted by a certain child's behavior. Another staff member may not be bothered by the same problem or child. In such cases, it is clearly in the best interest of the child and staff member to make assignments of children to staff with a sensitivity to each person's compatibilities. It is interesting to note how children often self select their therapist by relating to or doing tasks for one staff member and not for another. While on the surface the observed behavior may be similar, often children pick up on the nonverbal cues staff give off in their process of relating to a given child. While the authors feel a need to have children learn to respond to a variety of personalities, given their particular problems with generalization, a therapist can learn much from his peers by singly observing the child's performance for someone he selected to relate to. At one time we asked staff to rate the 15 children on the unit in terms of like and dislike on a seven-point semantic differential scale. Interestingly, every child was some staff person's favorite child to work with. These relationships between staff and the children can be crucial in determining the progress the children make, as well as the happiness of any given staff member.

In a similar vein, it is also extremely important in working with families to get a good understanding of their dynamics so that one can select staff who can be best matched to those characteristics. For instance, we would not match two assertive therapists with a generally quiet family. We would want at least one of the therapists to have a personality style that the family could relate to easily. We would not match up a therapist who is quite theoretical and precise in the use of behavioral jargon with an illiterate family. Instead, we would use a more down-to-home style therapist. The other therapist may work well with a well-educated family. Thus, it is important to assess your therapists' abilities and unique styles with those of each family.

SUMMARY

The authors have presented what they believe are a few essential components of a successful project. The organization of the system must be clear, and communication must be frequent and of an open nature. Staff must have intensive training followed by regular inservice training and a basic belief in the philosophy and goals of the project. The chapter discussed ways by which staff morale may be maintained and heightened as well as stressed the need for flexibility and the need to match therapist variables.

While this chapter may be relatively short, it is felt by the authors that many of the issues discussed in this chapter have been well illustrated in the three previous chapters dealing with complex, integrated systems such as the family, school, and community agency involvement. Thus, it would only be redundant to repeat that process in this chapter, even though the issues described certainly relate to therapeutic effectiveness.

Summary Statement

This book is a review of a systems approach in the treatment of psychotic and neurologically impaired children. It encompasses theoretical orientations as well as practical examples and issues that demonstrate the implementation of a total systems approach. Although it reflects on the provision of services for a very specialized population, the methods, systems, and approaches described are applicable to many diverse groups of clients.

This final summary will give the reader a very brief review of the main issues involved in this systems approach.

The focus on diagnosis and etiology cautions the reader to be aware of the lack of agreement between researchers and clinicians in the classification and categorization of these severe psychiatric disorders in children. The literature review emphasizes the questionable validity of diagnosis and enumerates the problems of correlating signs and symptoms with diagnosis. Continuing with discussion of various theoretical positions and their contributions to etiologic formulations, there is a presentation of data that illustrates the problems of bias in seeking the one specific, uniform pathology responsible for manifestations of these disorders.

Translation of scientific methodology from the fields of ethology and cybernetics is enabling the design of more rigorous research studies. One must be aware of the difficulties inherent in instigation and interpretation of theory and results for human functioning. The study of the families of these children has progressed from purely subjective impressions to more sociologic, psychometric, and statistical ones. This is perhaps reflective of the increased parental involvement seen with these families, both as advocates for their children and as facilitators in some treatment programs. Language and its deficits, once a catalogued but little investigated area, is assuming a central role in the theory of and treatment with these children. Sophisticated techniques permit more precise evaluations and provide avenues for more intricate formulations related to causality. Although an inborn defect has been suggested for subsequent pathology, genetic studies have, to this point, given few leads as to specific etiology. Continuing findings in many recent reports indicate some significant differences in the development of and role played by cerebral dominance. Immunologic investigation has indicated possible genetic predispositions to viruses, but these theories are highly speculative. Neurochemical investigations, plagued by problems in methodology, are currently focused on extending their findings into more specific attempts to clarify concomitant neurochemical changes. Neuroendocrinologic measures in severely disturbed children have shown alterations in response to challenge testing with insulin as well as basic abnormalities in steroid measures. Varied results have been obtained by investigators researching clinical chemical and amino acid assays. Sleep studies, attentional measures, and electroencephalographic evaluations hold promise for the definition of basic organic defects. The association of autisticlike behaviors in neuropathologic disease states and severe emotional deprivation emphasizes the multifaceted expression of the disease state.

In approaching the issue from various treatment aspects, the theoretical bases of diagnosis and etiology are described further in relation to treatment issues. As no singular etiology has been defined, no singular mode of treatment has had success. Treatment is designed to alleviate problems which interfere with adjustment to school, family, and daily living. The treatment is symptomatic; the basic syndrome is unchanged. Behavioral approaches, based on learning theory, initially consisted of classical conditioning and operant conditioning techniques. Although predispositional factors are recognized as contributing to the disease, behavior modification focuses on specific aspects of the disorder which are learned and can be modified. Differences occur in the means of achieving extinction or deceleration of deviant behavior and acceleration of more adaptive, socially acceptable behavior. Parental, school, and community involvement in continuation of behavioral programs outside a hospital environment has shown increasing success on long-term evaluation. The area of teaching these children language skills has included extensive work with sophisticated programming in expressive language skill development. Receptive language programming has had some success, although more work is needed in the area.

Psychodynamic theories have required some change in traditional approaches to treatment. Free association plays a role in few current treatment methods. Stress is placed on the initial establishment of an exclusive need-satisfying relationship between child and therapist. Generally the therapist has the task of avoiding premature achievement of mere social conformity. The therapist also needs to remain a representative of reality. Treatment must be defined on an individual basis. Variations in individual child reaction, psychopathology in the family, accessibility of others for involvement in the treatment process, and the need to respect practical situations and timing in therapeutic interventions are all important aspects of the type, duration, and intensity of psychodynamic and psychoanalytic treatment.

Somatic therapies, most specifically the use of medication, have not shown evidence to support the contention that medication is more effective than other modes of treatment. As with other treatment methods, the choice of medication often depends on the presence of serious maladaptive behaviors such as severe agitation. Major tranquilizers appear to be most effective with these children. Serious side effects, including tardive dyskinesias, may limit the extensive use of these drugs in the future. Lithium carbonate, L-dopa, and megavitamins have shown few consistently positive results. Tri-iodothymonine (T_3) has shown some promise of effectiveness in preliminary studies. Body manipulations, the use of stimuli, or the deprivation of stimuli have shown occasional success in these populations.

As each child is an individual, the response to treatment must be considered in this light. The best and ultimate treatment for autistic children can only emerge from a combination of the better, more effective methods of pharmacology, psychodynamics, and behavior modification. What "works" in terms of the specific or global treatment methods is what should be further researched and applied. It is encouraging that the current trends in treatment for autistic children seem to suggest a merging of the three outstanding modes.

Systems theory and its application in defining goals and ensuring continuing development of effective evaluation and treatment programs comprises the next section. While this chapter may be considered quite theoretical, and brief, it encompasses those issues felt to highlight the work involved in the development of a functioning program. From simplistic one-cause, one-treatment approaches to these disorders, the consideration of reciprocal, multicausal events has been accompanied by an exponential complexity of approaches. General systems theory, analyzing individual components as well as the interactions among them, has shown its value in application to these problems. Isolation of one theoretical approach in the context of systems theory prohibits coherent investigation of interactional theoretical and clinical divisions. Although somewhat undefined in their final detailed function or goal, systems dealing with these problems characterize possibilities for definition of process and movement in the system. Ordering is an inherent characteristic of a system. Systems models of evaluation and treatment have isomorphic applicability. The bridging of scientific analysis and philosophic experience is an application of the theory. The systems approach is an evolutionary process which requires a continuing evaluation of measures and reassessment of parts of the model. Reaching objectives is dependent on modification of the process on the basis of these evaluations. It also depends on the demands and resource capability required to reach the objectives. A realistic assessment of needs and ability to function utilizes a group organization that can maximize both elements. The use and potential of systems, the contributions of game theory, formation of coalitions, cybernetics, and the process of evaluation have been discussed in the context of application to the needs of these children in varied resource situations. Thus, we introduce the remainder of this book where the process of the system is clearly illustrated.

The Project for Psychotic and Neurologically Impaired Children is briefly described in order to give the reader a general orientation to the type of program in which the authors have developed a comprehensive treatment approach. Although commonly thought of as a residential program for children with severe behavior problems and developmental delays, the project is a multicomponent service that encompasses research, education, evaluation, student training, community consultation, family training, and school transitioning, as well as clinical services to children.

The clinical services include a highly structured, data based program designed to decrease the frequency of a child's inappropriate or disruptive behaviors while increasing the frequency of socially appropriate skills through the use of a behavioral-educational approach. Children are generally involved in the residential components of the program for approximately 8 to 10 months. They are individually assessed and regularly reevaluated by a multidisciplinary team, including a psychologist, social worker, language therapist, occupational therapist, special educator, nurse, and psychiatric aide. Long-term goals, as well as short-term objectives are established by the multidisciplinary team, family, referring agencies, and community school personnel. All goals are aimed at assisting the child develop and learn to his potential as well as return to his home and community as soon as possible.

Baseline data are gathered prior to implementing any treatment program. In addition, every treatment program is written with great specificity and kept in the child's special data book for quick reference and weekly review. Weekly, and in some cases, daily data are taken on all treatment programs so that any slight trends, regressions, or gradual improvements can be readily identified.

The basic treatment approach is a behavioral approach that first involves creating a very positive, reinforcing, happy environment. The child then learns that he is removed from this positive environment and given a time-out if he engages in certain inappropriate behaviors. Modeling, rehearsal, reverse-chaining, reinforcement of approximations, and tangible and social reinforcements are used to teach the child preacademic, language, fine motor, gross motor, and social skills.

The PPNIC program described is a highly structured, well-organized treatment program that has very successfully programmed for some of the most difficult and bewildering children in Wiconsin.

The subsequent three chapters elaborate upon three components of the program that together not only compliment the clinical services but are believed by the authors to be absolutely necessary in order to provide a comprehensive, successful treatment program for severely impaired children. The family training program, school transitioning service, and community consultation and training aspect of the PPNIC demonstrate to the reader the practical aspects, problems, and positive results of developing and implementing an entire systems approach in working with clients.

Some of the issues involved in family intervention include the involvement of all family members; the development of a support system for the immediate family; a highly individualized approach in teaching families the necessary skills to manage their child; the development of open communication between the family and the treatment staff; and assisting parents to become child therapists and child advocates. A few of the practical aspects of the PPNIC parent training program are described. Some of these include the establishment of a written agreement with all families; carefully planning and outlining each training session; staying on task during a training session so that valuable time is not lost; modifying the amount of structure and the environment in which the training is done so that the sessions can more clearly reflect the child's normal situation; and teaching the family members methods to assess their own implementation of the child's treatment programs as well as each other's performance.

Intervention and training of the community school personnel involved with the child are key factors in determining the success of the child's transition to the community. Without a consistent approach in dealing with the child and without the support of a well-trained teacher, the child and family would be lost and isolated in a complex system. The project strives to train the community teacher, develop a positive communication system between the teacher and family, and modify the educational setting to best meet the child's needs. Two full-time PPNIC teachers work with the community school personnel both at the Institute and in the community in order to ensure a smooth transition for each child as he returns to his home school district.

Community consultation and training services are necessary in order for some children to be able to be placed in a residential program; for some to receive needed financial or supportive services; and for some to be able to remain in their home community. The PPNIC staff work intensively with community agencies prior to any child's admission to the residential program. Because they adhere to the belief that a child should remain with his family and community, they strive to develop community systems that can meet each child's special needs. When residential placement is necessary, they work with the community agencies throughout the course of the child's treatment to develop services that will benefit the child and family when he returns. Without such services, many children would be lost in the midst of policy changes, reorganization of systems, and bureaucratic red tape.

Community consultation services are also needed to prevent unnecessary residential placements, improve educational services, assist other treatment facilities in developing better programs, and, most importantly, to make all communities aware of the special needs of their clients, and of methods for planning and developing therapeutic services.

This systems approach that encompasses clinical services, parent involvement, school transitioning, and community consultation is illustrated in the case example chapter, "Darren." Darren is a typical child referred to the project for admission. His parents have become frustrated, and the school personnel do not know how to deal with him. Details of his clinical programs and progress are briefly reviewed. The role the parents play in Darren's therapy as well as the services provided by the community agencies are described. The coordination of the clinical services, family involvement, school personnel training, and services available from the Human Services Board social worker is depicted in the referral process, course of Darren's treatment, return to the community, and aftercare program. This chapter describes the interplay of all the components of the systems model that is necessary in order to provide a comprehensive delivery of services to any client.

Finally, the authors felt the need to briefly outline a few additional factors affecting the therapeutic effectiveness of a program such as the Project for Psychotic and Neurologically Impaired Children. Because extensive literature regarding mental health administration, administrative organization, management, supervision, and staff selection is available in any library, the authors wanted only to summarize a few practical suggestions that they have found beneficial in providing clinical services. The PPNIC staff organization, a team approach, is reviewed; the extensive staff training model is outlined; key elements in matching therapist variables are discussed; and ideas about preventing staff burn-out and morale problems are described.

In summary, the authors have described a systems approach in the delivery of therapeutic services to a very specialized group of clients, the psychotic and neurologically impaired children. This approach has been highly successful and effective in returning children generally considered "institutional" to their homes and communities. The children have been maintained in the communities and their homes and have grown and become part of their communities. The authors hope that their experiences can be helpful to others who face similar challenges in their professional careers.

References

Ackoff, R. (1972): A note on systems science. *TIMS Interfaces,* **2**: 40–41.

Ainsworth, M. and Bowlby, J. (1954): Research strategy in the study of mother-child separation. *Courrier,* **4**(3): 2.

Allen, G. and Kallmann, F. (1955): Frequency and types of mental retardation in twins. *Amer. J. Human Genetics,* **7**: 15–20.

Allport, G. (1960): The open system in personality theory. *J. Abnormal and Social Psychology*, **61**: 301–311.

Alpert, A. (1961): Reversibility of pathological fixations associated with maternal deprivation in infancy. *Psychoanalytic Study of the Child,* **14**: 81–90.

Alpert, A. (1964): Treatment of an autistic child. *J. Amer. Academy of Child Psychiatry*, **3**: 591–616.

Anthony, E. J. (1958): An experimental approach to the psychopathology of childhood. *Brit. J. Medical Psychology*, **31**: 211–223.

Ashby, W. (1956): *An Introduction to Cybernetics.* London, Wiley.

Baer, D. and Guess, D. (1971): Receptive training of adjectival inflections in mental retardates. *J. Applied Behavior Analysis,* **4**: 129–139.

Baer, D., Wolf, M., and Risley, T. (1968): Some current dimensions of applied behavior analysis. *J. Applied Behavior Analysis,* **1**: 91–97.

Bandura, A. and Walters, R. (1963): *Social Learning and Personality Development.* Holt, Rinehart and Winston Co., New York.

Bartak, L., Rutter, M., and Cox, A. (1975): A comparative study of infantile autism and specific developmental receptive language disorder. I. The children. *Brit. J. Psychiatry*, **126**: 127–145.

Bateson, G., Jackson, D., Haley, J., and Weakland, J. (1956): Toward a theory of schizophrenia. *Behavioral Sciences,* **1**: 251–264.

Belton, Backus, R. and Millicap, J. G. (1967): Serum creatine phosphokinase activity in epilepsy. *Neurology*, **17**: 1073–1076.

Bender, L. (1947): Childhood schizophrenia: Clinical study of 100 schizophrenic children. *Amer. J. Orthopsychiatry*, **17**: 40–56.

Bender, L., Faretra, G., and Cobrinik, L. (1963): LSD and UML treatment of hospitalized disturbed children. In *Recent Advances in Biological Psychiatry*. Wortis, J., ed. Plenum Press, New York.

Bender, M. A. and Gooch, P. G. (1961): An unusually long human Y chromosome. *Lancet* 2: 463–464.

Berkowitz, B. and Graziano, A. (1972): Training parents as behavior therapists: A review. *Behavior Research and Therapy*, **10**: 297–317.

Bettelheim, B. (1959): Joey: A mechanical boy. *Scientific American*, **200**(3): 117.

Bettleheim, B. (1967): *The Empty Fortress: Infantile Autism and the Birth of Self.* The Free Press, New York.

Biesele, J. and Schmid, W. (1962): Mentally retarded schizoid twin girls with 47 chromosomes. *Lancet*, **1**: 403–405.

Bijou, S. W. and Baer, D. (1961): *Child Development: A Systematic and Empirical Study*. Appleton-Century-Crofts, New York.

Bittker, T., Buchsbaum, M., Williams R., et al. (1975): Cardiovascular and neurophysiologic correlates of sensory intake and rejection: II. Interview behavior. *Psychophysiology*, **12**: 434–438.

Book, J., Nichtern, S., and Gruenberg, E. (1963): Cytogenetical investigations in childhood schizophrenia. *Acta Psychiatrica Scandinavica*, **39**: 309–323.

Boucher, J. (1976): Is autism primarily a language disorder? *Brit. J. Disorders of Communication*, **11**: 135–143.

Boullin, D., Coleman, M., O'Brien, R., and Rimland, B. (1971): Laboratory predictions of infantile autism based on 5-hydroxytryptamine efflux from blood platelets and their correlation with the Rimland E-2 score. *J. Autism and Childhood Schizophrenia*, **1**: 63–71.

Boullin, D., and O'Brien, R. (1972): Uptake and loss of 14C-dopamine by platelets from children with infantile autism. *J. Autism and Childhood Schizophrenia*, 2: 67–74.

Bowlby, J. (1952): *Maternal Care and Mental Health*. World Health Organization, Monograph Series: Number 2, Geneva.

Bram, S. and Meir, M., (1977): A relationship between motor control and language development in an autistic child. *J. Autism and Childhood Schizophrenia*, 7: 57–67.

Breger, B. (1965): Comments on building social behavior in autistic children by use of shock. *J. Experimental Research in Personality*, 2: 110–113.

Bricker, W. and Bricker, D. (1971): Receptive vocabulary as a factor in the discrimination performance of low-functioning children. *Amer. J. Mental Deficiency*, 75: 599–605.

Broen, E., Jr. (1968): *Schizophrenia: Research and Theory*. Academic Press, New York.

Brooks, B., Morrow, J. and Gray, W. (1968): Reduction of autistic gaze aversion by reinforcement of visual attention responses. *J. Special Education*, 2: 307–309.

Brownfield, C. B. (1965): *Isolation: Clinical and Experimental Approaches.* Random House, New York.

Browning, R. M. and Stover (1970): The experimental clinical method of treating emotionally disturbed children.

Bryson, C. Q. (1972): Short term memory and cross-model information processing in autistic children. *J. Learning Disabilities,* **5**: 81–91.

Burlingham, D. and Freud, A. (1944): *Infants Without Families.* Allen and Unwin, London.

Campbell, M. (1973): Biological interventions in psychoses of childhood. *J. Autism and Childhood Schizophrenia,* **5**: 347–373.

Campbell, M. (1975): Pharmacotherapy in early infantile autism. *Biological Psychiatry,* **10**: 399–423.

Campbell, M., Dominijanni, C., and Schneider, B. (1977): Monozygotic twins concordant for infantile autism: Follow-up. *Brit. J. Psychiatry,* **131**: 616–622.

Campbell, M. and Fish, B. (1974): Triiodothyronine in schizophrenic children. In *Thyroid Axis, Drugs and Behavior.* Prange, A. J., Jr., ed. Raven Press, New York: pp. 87–102.

Campbell, M., Fish, B., Korein, J., Shapiro, T., Collins, P., and Koh, C. (1972): Lithium-chlorpromazine: A controlled crossover study in hyperactive severely disturbed young children. *J. Autism and Childhood Schizophrenia,* **2**: 234–263.

Campbell, M., Fish, B., Shapiro, T., and Floyd, A., Jr. (1970: Thiothixene in young disturbed children. A pilot study. *Archives of General Psychiatry,* **23**: 70–72.

Campbell, M., Fish, B., Shapiro, T., and Floyd, A., Jr. (1971): Imipramine in preschool autistic and schizophrenic children. *J. Autism and Childhood Schizophrenia,* **1**: 267–282.

Campbell, M., Friedman, E., Devito, E., Greenspan, L., and Collins, P. (1974): Blood serotonin in psychotic and brain damaged children. *J. Autism and Childhood Schizophrenia,* **4**: 33–41.

Campbell M., Friedman, E., Green, W., Collins, P., Small, A., and Breuer, H. (1975): Blood serotonin in schizophrenic children. *International Pharmacopsychiatry,* **10**: 213–221.

Cantwell, D. and Baker, L. (1977): Psychiatric disorder in children with speech and language retardation. A critical review. *Archives General Psychiatry,* **34**: 383–591.

Capute, A. Derivan, A., Chauvel, P., and Rodriguez (1975): Infantile autism. I. A prospective study of the diagnosis. *Developmental Medicine and Child Neurology,* **17**: 58–62.

Casler, L. (1961): Maternal deprivation: A critical review of the literature. *Monographs of the Society for Research in Child Development,* **26**: 1–64.

Chess, S. (1969): An interactive view of childhood schizophrenia. In *Schizophrenia: Current Concepts and Research.* Sankar, D. V. S., ed. PJD Publishing Company, New York.

Chess, S. (1971): Autism in children with congenital rubella. *J. Autism and Childhood Schizophrenia,* **1**: 33–47.

Chess (1977): Follow-up report on autism in congenital rubella. *J. Autism and Childhood Schizophrenia,* **7**: 69–81.

Churchill, Alpern, G., and DeMyer, M. (eds.) (1971): *Infantile Autism: Proceedings of the Indiana University Colloquium.* Charles C Thomas, Springfield, IL.

Clancy, H. and Rendle-Short, J. (1968): Infantile autism: A problem of communication. *Australian Occupational Therapy J.,* **15**: 7–20D.

Clerk, G. (1961): Reflections on the role of the mother in the development of language in the schizophrenic child. *Canadian Psychiatric Association J.,* **6**: 252.

Cobb, L., Ripley, H., and Jones, J. (1964): Modification of free fatty acid levels during hypnotic suggestion of exercise (abstract). *Clinical Research,* **12**: 82.

Coffey, H. and Weiner, I. (1967): *Group Treatment of Autistic Children.* Prentice-Hall, Englewood Cliffs, N.J.

Cohen, D., Caparulo, B., and Shaywitz, B. (1976): Primary childhood aphasia and childhood autism: Clinical, biological, and conceptual observations. *J. Amer. Academy Child Psychiatry,* **15**: 604–645.

Cohen, D., Caparulo, B., Shaywitz, B., and Bowers, M., Jr. (1977): Dopamine and serotonin metabolism in neuropsychiatrically disturbed children. CSF homovanillic acid and 5-hydroxyindoleacetic acid. *Archives of General Psychiatry,* **34**: 545–550.

Cohen, D. and Johnson, W. (1977): Cardiovascular correlates of attention in normal psychiatrically disturbed children. *Archives of General Psychiatry,* **34**: 561–567.

Cohen, D., Johnson, W., Caparulo, B., and Young, J. (1976): Creatine phosphokinase levels in children with severe developmental disturbances. *Archives of General Psychiatry,* **33**: 683–686.

Cohen, D., Young, J., and Roth J. (1977): Platelet monoamine oxidase in early childhood autism. *Archives of General Psychiatry,* **34**: 534–537.

Colby, K. (1968): Computer-aided language development in non-speaking children. *Archives of General Psychiatry,* **19**: 641–651.

Colby, K. et al. (1971): Computers in the treatment of non-speaking autistic children. *Current Psychiatric Therapies,* **2**: 1–18.

Colby, K. and Parkison, C. (1977): Handedness in autistic children. *J. Autism and Childhood Schizophrenia,* **7**: 3–9.

Coleman, J. (1964): *Abnormal Psychology and Modern Life.* 3rd ed. Scott, Foresman and Company, New York.

Coleman, M., Campbell, M., Freedman, L., et al. (1974): Serum dopamine-B-hydroxylase levels in Down's syndrome. *Clinical Genetics,* **5**: 312–315.

Cook, O. and Adams, H. (1966): Modification of verbal behavior in speech deficient children. *Behavior Research and Therapy,* **4**: 265–271.

Cordes, C. K. (1973): Chronic drug intoxication causing pseudoretardation in a young child. *J. Amer. Academy Child Psychiatry,* **12**: 215.

Cox, A., Rutter, M., Newman, S., and Bartak, L. (1975): A comparative study of infantile autism and specific developmental receptive language disorder. II. Parental characteristics. *Brit. J. Psychiatry,* **126**: 146–159.

Creak, M. (1964): Childhood psychosis: A review of one hundred cases. *Brit. J. Psychiatry,* **109**: 84–89.

Creak, M. (1972): Reflections on communication and autistic children. *J. Autism and Childhood Schizophrenia,* 2: 1–8.

Cunningham, M. (1968): A comparison of the language of psychotic and non-psychotic children who are mentally retarded. *J. Child Psychology and Psychiatry,* 9: 229–244.

Darby, J. (1976): Neuropathologic aspects of psychosis in children. *J. Autism and Childhood Schizophrenia,* 6: 339–352.

Davison, G. (1965): The training of undergraduates as social reinforcers of autistic children. In *Case Studies in Behavior Modification.* Ullman, L. P., ed. Holt, Rinehart, and Winston, New York.

DeMyer, M. (1973): Prognosis in autism: A follow-up study. *J. Autism and Childhood Schizophrenia,* 3: 199–246.

DeMyer, M. (1975): Research in infantile autism: A strategy and its results. *Biological Psychiatry,* **10**: 433–452.

DeMyer, M. (1976): Motor, perceptual-motor and intellectual disabilities of autistic children. In *Early Childhood Autism.* Wing, L., ed. Pergamon Press, Oxford.

DeMyer, M., Churchill, D., Pontius, W., and Gilkey, K. (1971): A comparison of five diagnostic systems for childhood schizophrenia and infantile autism. *J. Autism and Childhood Schizophrenia,* **1**: 175–189.

DeMyer, M. and Ferster, C. (1962): Teaching new social behavior to schizophrenic children. *J. Amer. Academy of Child Psychiatry,* **1**: 443–451.

DeMyer, M., Schweir, H., Bryson, C., Solow, E., and Roecke, N. (1971): Free fatty acid response to insulin and glucose stimulation in schizophrenic, autistic and emotionally disturbed children. *J. Autism and Childhood Schizophrenia,* **1**: 436–452.

Denny-Brown, D. (1962): The midbrain and motor integration. *Proceedings Royal Society Medicine,* **55**: 527–538.

DesLauriers, A. (1962): *Experience of Reality in Childhood Schizophrenia.* International Universities Press, New York.

DesLauriers, A. and Carlson, C. (1969): *Your Child is Asleep: Early Infantile Autism.* Dorsey Press, Homewood, IL.

Desmond, M., Wilson, G., Melnick, J., et al. (1967): Congenital rubella encephalitis. *J. Pediatrics,* **71**: 311–331.

Desmond, M., Wilson, G., Verniaud, W., Melnick, J., and Rawls, W. (1970): The early growth and development of infants with congenital rubella. *Advances in Teratology,* **4**: 39–63.

Drotar, D. (1978): A critique of the double bind theory of infantile autism. *J. Amer. Academy of Child Psychiatry.* **17**: 46–48.

Durkin-Stamm, M.: Personal communication.

Ebert, M.: Personal communication.

Eisenberg, L. (1956): The autistic child in adolescence. *Amer. J. Psychiatry,* **112**: 607–612.

Eisenberg, L. (1972): The classification of childhood psychosis reconsidered. *J. Autism and Childhood Schizophrenia,* 2: 338–341.

Eisenberg, L. and Conners, C. (1971): Psychopharmacology in childhood. In *Behavioral Science in Pediatric Medicine.* Talbot, N., Kagan, J., and Eisenberg, L., eds. W.B. Saunders Co., Philadelphia: pp. 397–423.

Eisenberg, L. and Kanner, L. (1956): Early infantile autism, 1943–1955. *Amer. J. Orthopsychiatry,* **26**: 556–566.

Ekstein, R. (1966): *Children of Time and Space, Of Action and Impulse.* Appleton-Century-Crofts, Inc., New York.

Ekstein, R. and Caruth, E. (1976): On the structure of inner and outer Spielraum—the play space of the schizophrenic child. In *Psychopathology and Child Development.* Schoepler, E., ed. Plenum, New York.

Engelhart, D., Polizos, P., Waizer, J., and Hoffman, S. (1973): A double-blind comparison of fluphenazine and haloperidol in outpatient schizophrenic children. *J. Autism and Childhood Schizophrenia,* **3**: 128–137.

Escalona, S. (1948): Some considerations regarding psychotherapy with psychotic children. *Bulletin of the Menninger Clinic,* **11–12**: 126–134.

Evans, B. (1941): The wolf child. *New Republic,* **104**: 892.

Faretra, G., Dooher, L., and Dowling, J. (1970): Comparison of haloperidol and fluphenazine in disturbed children. *Amer. J. Psychiatry,* **126**: 1670.

Faurbye, A. and Pind, K. (1966): Failure to detect 3,4 DMPEA in the urine of psychotic children. *Acta Psychiatrica Scandinavica Supplement,* **191**: 136–148.

Ferster, C. (1961) Positive reinforcement and behavioral deficits of autistic children. *Child Development,* **32**: 437–456.

Ferster, C. and DeMyer, M. (1962): A method for the experimental analysis of the behavior of autistic children. *Amer. J. Orthopsychiatry,* **32**: 89–98.

Fineman, K. (1968a): Visual-color reinforcement in establishment of speech by an autistic child. *Perceptual and Motor Skills,* **26**: 761–762.

Fineman, K. (1968b): Shaping and increasing verbalizations in an autistic child in response to visual-color stimulation. *Perceptual and Motor Skills,* **27**: 1071–1074.

Fischer, S. (1975): On the development of the capacity to use transitional objects: A case study of an autistic child. *J. Amer. Academy of Child Psychiatry,* **14**(1): 114–124.

Fish, B. (1960): Drug therapy in child psychiatry: Pharmacological aspects. *Comprehensive Psychiatry,* **1**: 212–227.

Fish, B. (1971): The "one child, one drug" myth of stimulants in hyperkinesis. Importance of diagnostic categories in evaluating treatment. *Archives of General Psychiatry,* **24**: 193–203.

Fish, B. (1975): Biologic antecedents of psychosis in children. In *Biology of the Major Psychoses.* Freedman, D. X., ed. Raven Press, New York.

Fish, B., Campbell, M., Shapiro, T., and Floyd, A., Jr. (1969): Schizophrenic children treated with methysergide (Sansert). *Diseases of the Nervous System,* **30**: 534–540.

Fish, B. and Shapiro, T. (1965): A typology of children's psychiatric disorders. I. Its application to a controlled evaluation of treatment. *J. Amer. Academy of Child Psychiatry,* **4**: 32–52.

Folstein, S. and Rutter, M. (1977): Genetic influences and infantile autism. *Nature*, **265**(5596): 727-729.

Forness, S. R. and MacMillan, D.L. (1970: The origins of behavior modification with exceptional children. *Exceptional Child*, **37**: 93-100.

Forrester, J. (1968): *Principles of Systems.* Wright-Allen Press, Cambridge.

Fowle, A. (1968): Atypical leukocyte pattern of schizophrenic children. *Archives of General Psychiatry*, **18**: 666-680.

Frankel, P. and Graham, V. (1976): Systematic observation of classroom behavior of retarded and autistic preschool children. *Amer. J. Mental Deficiency*, **81**: 73-84.

Freedman, A., Evin, E., and Wilson E. (1962): Autistic schizophrenic children. An experiment in the use of D-lysergic acid diethylamide (LSD-25). *Archives of General Psychiatry*, **6**: 203-213.

Freedman, D. (1975): Congenital and perinatal sensory deprivations: Their effect on the capacity to experience affect. *Psychoanalytic Quarterly*, **44**: 62-80.

Freeman, B., Frankel, F., and Ritvo, E. (1976): The effects of response contingent vestibular stimulation on the behavior of autistic and retarded children. *J. Autism and Childhood Schizophrenia*, **6**: 353-358.

Friedhoff, A. and Van Winkle, E. (1962): Isolation and characterization of a compound from the urine of schizophrenics. *Nature*, **194**: 897-898.

Freud, A. (1959): *The Psychoanalytic Treatment of Children.* International Universities Press, New York.

Gamson, W. (1961): A theory of coalition formation. *Amer. Sociological Review*, **26**: 373-382.

Garcia, B. and Sarvis, M. (1964): Evaluation and treatment planning for autistic children. *Archives of General Psychiatry*, **10**: 530-541.

Gedo, J. and Goldberg, A. (1973): *Models of the Mind. A Psychoanalytic Theory.* University of Chicago Press, Chicago.

Gittelman, M. and Cleeman, J. (1969): Serum magnesium level in psychotic and normal children. *Behavioral Neuropsychiatry*, **1**: 51-52.

Goldfarb, W. (1955): Emotional and intellectual consequences of psychologic deprivation in infancy: A re-evaluation. In *Psychopathology of Childhood.* Hock, P. and Zubin, J., eds. Grune and Stratton, New York.

Goldfarb, W. (1961): *Childhood Schizophrenia.* Harvard University Press, Cambridge.

Goldfarb, W. (1963): Self-awareness in schizophrenic children. *Archives of General Psychiatry*, **8**: 47-60.

Goldfarb, W., Goldfarb, N., and Pollack, R. (1966): Treatment of childhood schizophrenia. *Archives of General Psychiatry*, **14**: 119-128.

Goldfarb, W., Spitzer, R., and Endicott, J. (1976): A study of psychopathology of parents of psychotic children by structured interview. *J. Autism and Childhood Schizophrenia*, **7**: 327-338.

Goldstein, M. (1971): Dopamine-B-hydroxylase studies: Dopamine-B-hydroxylase and endogenous total 5-hydroxyindole levels in autistic patients and controls. In *The Autistic Syndromes.* Coleman, M., ed. North Holland Publishing Co., Amsterdam: pp. 57-59.

Goodwin, M., Cowen, M., and Goodwin, T. (1971): Malabsorption and cerebral dysfunction: A multivariate and comparative study of autistic children. *J. Autism and Childhood Schizophrenia*, **1**: 48–62.

Gottesman, I. and Shields, J. (1972): *Schizophrenia and Genetics: A Twin Study Vantage Point*. Academic Press, New York.

Gram, L. and Rafaelsen, O. (1972): Lithium treatment of psychotic children and adolescents. A controlled clinical trial. *Acta Psychiatrica Scandinavica*, **48**: 253–260.

Greenbaum, G. (1970): An evaluation of niacinamide in the treatment of childhood schizophrenia. *Amer. J. Psychiatry*, **127**: 89–92.

Grey-Walter, W. (1964): Report on neurophysiological correlates of apparent defects of sensory-motor integration in autistic children. *Mental Health Research Fund Report*.

Grinker, A., Sr. (1975): The relevance of general systems theory to psychiatry. In *American Handbook of Psychiatry*. Vol. 6. Arieti, S., ed. Basic Books, New York: pp. 251–272.

Guess, D. (1969): A functional analysis of receptive language and productive speech: Acquisition of the plural morpheme. *J. Applied Behavior Analysis*, **2**: 55–64.

Hall, A. (1969): Three dimensional morphology of systems engineering. LEEE Transit. *Systems Science Cybornetics*, **SSG-5**: 156–160.

Hallgren, G. and Sjogren, T. (1959): A clinical and genetico-statistical study of schizophrenia and low grade mental deficiency in a large Swedish rural population. *Acta Psychatrica Scandinavica Supplement*, **140**.

Hamburg, D. (ed.) (1970): *Psychiatry as a Behavioral Science*. Prentice-Hall, Englewood Cliffs, N.J.

Hanley, H., Stahl, S., and Freedman, D. (1977): Hyperserotonemia and amine metabolites in autistic and retarded children. *Archives General Psychiatry*, **34**: 521–531.

Hanson, A., Brask, B., Nielsen, J., Rasmussen, K., and Sellesin, I. (1977): A case report of an autistic girl with an extra bisatellited marker chromosome. *J. Autism and Childhood Schizophrenia*, **7**: 263–267.

Hanson, D. and Gottesman, I. (1976): The genetics, if any, of infantile autism and childhood schizophrenia. *J. Autism and Childhood Schizophrenia*, **6**: 209–234.

Hauf, C. (1969): A two stage program for modifying maternal controlling during mother-child (M-C) interaction. Paper presented at Western Psychological Association, Vancouver.

Harlow, H., Harlow, M., Dodsworth, R., and Arling, G. (1966): Maternal behavior of rhesus monkeys deprived of mothering and peer associations in infancy. *Proceedings American Philosophical Society*, **110**: 58–66.

Harlow, H., Rowland, G., and Griffin, G. (1965): The effect of total social deprivation on the development of monkey behavior. *Psychological Research Report*, **19**: 116–135.

Harlow, H., Shiltz, K., and Harlow, M. (1969): Effects of social isolation on the learning performance of rhesus monkeys. In *Proceedings 2nd International Conference Primate*. Vol. 1. Carpenter, C. R., ed. Karger, New York.

Harlow, H. and Suomi, S. (1971): Social recovery by isolation reared monkeys. *Proceedings National Academy Science*, **68**: 1534–1538.

Harper, J. and Williams, S. (1975): Age and type of onset as critical variables in early infantile autism. *J. Autism and Childhood Schizophrenia*, **5**: 25–36.

Hartung, J. (1970): A review of procedures to increase verbal imitation skills and functional speech in autistic children. *J. Speech and Hearing Disorders*, **35**: 203–217.

Havel, R. and Goldfien, A. (1959): The role of the sympathetic nervous system in the metabolism of free fatty acids. *J. Lipid Research*, **1**: 102–108.

Havelkova, M. (1968): A follow-up study of 71 children diagnosed as psychotic in pre-school age. *Amer. J. Orthopsychiatry*, **38**: 846–857.

Havens, L. (1973): *Approaches to the Mind*. Little, Brown and Co., Boston.

Hawkins, R. (1972): It's time we taught the young how to be good parents (and don't we wish we'd started a long time ago?). *Psychology Today*, **6**: 28–40.

Haworth, M. (ed.) (1964): *Child Psychotherapy*. Basic Books, Inc., New York.

Hermelin, B. and O'Connor, N. (1968): Measures of the occipital alpha rhythm in normal, subnormal and autistic children. *Brit. J. Psychiatry*, **114**: 603–610.

Hermelin, H. and Venables, P. (1964): Reaction time and alpha blocking in normal and severely subnormal subjects. *J. Experimental Psychology*, **67**: 365–372.

Heston, L. (1966): Psychiatric disorders in foster home-reared children of schizophrenic mothers. *Brit. J. Psychiatry*, **112**: 819–825.

Hewett, F. (1965): Teaching reading to an autistic child through operant conditioning. *Amer. J. Orthopsychiatry*, **35**: 927–936.

Himwich, H. (1975): Summary of symposium. *Biological Psychiatry*, **10**: 453–458.

Himwich, H. et al. (1972): A biochemical study of early infantile autism. *J. Autism and Childhood Schizophrenia*, **2**: 114–126C.

Hingtgen, J., Sanders, B., and DeMyer, M. (1963): Shaping cooperative responses in early childhood schizophrenics. *Amer. Psychological Association, Annual Meeting*, 1963.

Hingtgen, J., Sanders, B., and DeMyer, (1965): Teaching speech to an autistic child through operant conditioning. *Amer. J. Orthopsychiatry*, **35**: 927–936.

Hinton, G. (1963): Childhood psychosis or mental retardation: A diagnostic dilemma. II. Pediatric and neurological aspects. *Canadian Medical Association Journal*, **89**: 1020–1024.

Hobson, J., McCarley, R., and Wyzinski, P. (1975): Sleep cycle oscillation: Reciprocal discharge by two brainstem neuronal groups. *Science*, **189**: 55–58.

Hoffer, A. (1970): Childhood schizophrenia: A case treated with nicotinic acid and nicotinamide. *Schizophrenia*, **2**: 43–53.

Hoffer, A. and Mahon, M. (1961): The presence of unidentified substances in the urine of psychiatric patients. *J. Neuropsychiatry*, **2**: 331–362.

Hoffer, A. and Osmond, H. (1966): Nicotinamide adenine dinucleotide (NAD) as a treatment of schizophrenia. *J. Psychopharmacology*, **1**: 79.

Hough, R. (1974): The control of complex systems. *Advances in Cybernetics and Systems Research.* Transcripts Books, London.

Hutt, C. and Hutt, S. (1969): Biological studies of autism. *J. Special Education,* 3: 3–11.

Hutt, C. and Hutt, S. (1970): Stereotypies and their relation to arousal: A study of autistic children. In *Behaviour Studies in Psychiatry.* Hutt, C. and Hutt, S., eds. Pergamon Press, Ltd., Oxford.

Hutt, C. Hutt, S., Lee, D., and Ounsted, C. (1964): Arousal and childhood autism. *Nature,* **204**: 908–909.

Hutt, S., Hutt, C., Lee, D., and Ounsted, C. (1965): A behavioral electrocephalographic study of autistic children. *J. Psychiatric Research,* **3**: 181.

Isaacs, W., Thomas, J., and Goldiamond, I. (1960): Application of operant conditioning to reinstate verbal behavior in psychotics. *J. Speech and Hearing Disorders,* **25**: 8–12.

Itard, J. (1932): *The Wild Boy of Aveyron.* Translated by George and Muriel Humphrey. Appleton-Centry-Crofts, New York.

Jacobson, E. (1967): *Psychotic Conflict and Reality.* International Universities Press, New York.

Jellis, T. (1972): The back projection of kaleidoscopic patterns as a technique for eliciting verbalizations in an autistic child: A preliminary note. *Brit. J. Disorders of Communication,* **7**: 157–162.

Jensen, G. and Womack, M. (1967): Operant conditioning techniques applied in the treatment of an autistic child. *Amer. J. Orthopsychiatry,* **37**: 30–34.

Johnson, C. and Katz, R. (1973): Using parents as change agents for their children: A review. *J. Child Psychology Psychiatry,* **10**: 107–121.

Judd, L. and Mandell, A. (1968): Chromosome studies in early infantile autism. *Archives of General Psychiatry,* **18**: 450–457.

Kahn, R. and Arbib, M. (1971): Infantile autism and childhood "schizophrenia": A cybernetic approach to mental development. In *The Mental Health Field: A Critical Appraisal.* Levitt, M. and Rubenstein, B., eds. Wayne State University Press, Detroit.

Kahn, R. and Arbib, M. (1973): A cybernetic approach to childhood psychosis. *J. Autism and Childhood Schizophrenia,* **3**: 261–273.

Kallmann, F. and Roth, B. (1956): Genetic aspects of pre-adolescent schizophrenia. *Amer. J. Psychiatry,* **112**: 599–606.

Kanner, L. (1943): Autistic disturbances of affective content. *The Nervous Child,* 2: 217–250.

Kanner, L. (1949): Problems of nosology and psychodynamics of early infantile autism. *Amer. J. Orthopsychiatry,* **19**: 417–426.

Kanner, L. (1954): To what extent is early infantile autism determined by constitutional inadequacies? *Research Publications of the Association for Research in Nervous and Mental Disease,* **33**: 378–385.

Kanner, L. (1973): Follow Up study of eleven autistic children originally reported in 1943 IN: Kanner, L. (ed.) Childhood Psychosis: Initial Studies and New Insights. New York: Wiley, pp. 161–187.

Kanner, L. and Eisenberg, L. (1955): Notes on the follow-up studies of autistic children. In *Psychopathology of Childhood,* Hoch, P. and Zubin, J. (eds.) Grune and Stratton, New York: pp. 227–239.

Kast, F. and Rosenzeig, J. (1972): General systems theory: applications for organization and management. *Academy of Management Journal,* **15**: 447–465.

Katsenelinboigen, A. (1974) General systems theory and axiology *General Systems* **19**: 19–26.

Katsenelinboigen, A. (1975) The potential of a system. *Proceedings: Society for General Systems Research,* Annual Meeting, New York.

Kaveggia, E., Durkin, M., Pendleton, E., and Opitz, J. (1975): Diagnostic and genetic studies on 1,224 patients with severe mental retardation. *Proceedings of the Third Congress of the International Association for the Scientific Study of Mental Deficiency,* The Hague, The Netherlands.

Kennard, M. (1953) The electroencephalogram in psychological disorders. A review. *Psychosomatic Medicine,* **15**: 95–115.

King, G., Stewart, G., Armitage, J., and Tiltin, R. (1960): Therapeutic approach to schizophrenics of extreme pathology. *J. Abnormal and Social Psychology,* **61**: 276–286.

King, P. (1975): Early infantile autism: Relation to schizophrenia. *J. Amer. Academy of Child Psychiatry,* **14**: 666–682.

Klein, M. (1950): *The Psychoanalysis of Children,* Hogarth Co., London.

Kliman, G., Burian, E., and Frazer, M. Therapeutic Incubation—a Variation of Mahler's Tripartite Method or Treatment of Symbiotic Psychotic Children and their Parents. A preliminary report for the Boehm Foundation. Center for Preventive Psychiatry Reprint, CPP, White Plains, N.Y. 1978.

Knight, E. (1963): Some considerations regarding the concept "autism." *Diseases of the Nervous System,* **24**: 224.

Koegel, R. and Rincover, A. (1977): Research on the difference between generalization and maintenance in extra-therapy responding. *J. Applied Behavior Analysis,* **10**: 1–12.

Koegel, R. and Schreibman, I. (1974): The role of stimulus variables in teaching autistic children. In *Perspectives in Behavior Modification with Deviant Children.* Lovaas, O. I. and Bucher, B. D., eds. Prentice-Hall, Englewood Cliffs, N.J.: pp. 537–546.

Koegel, R. and Schreibman, L. (1976): Identification of consistent responding to auditory stimuli by a functionally deaf autistic child. *J. Autism and Childhood Schizophrenia,* **6**: 147–156M.

Kolvin, I., Humphrey, M., and McNay, A. (1971): Cognitive factors in childhood psychoses. *Brit. J. Psychiatry,* **118**: 415–419.

Kotsopoulos, S. (1976): Infantile autism in dizygotic twins. A case report. *J. Autism and Childhood Schizophrenia,* **6**: 133–138.

Kozloff, M. (1973): *Reaching the Autistic Child: A Parent Training Program.* Research Press, Champaign, IL.

Kuhn, A. (1974): *The Logic of Social Systems.* Jossey-Bass Publishers, San Francisco.

L'Abate, L. (1969): An input-output approach to psychodiagnosis of children. *International Journal of Psychosynthesis,* **26**: 179–186.

L'Abate, L. (1972): Early infantile autism: A reply to Ward. *Psychological Bulletin,* **77**: 49–51.

Lake, C., Ziegler, M., and Murphy, D. (1977): Increased norepinephrine levels and decreased dopamine-B-hydroxylase activity in primary autism. *Archives of General Psychiatry,* **34**: 553–556.

Lazlo, E. (1972): *The Systems View of the World.* Harper, New York.

Leff, R. (1972): Behavior modification with emotionally disturbed children. In *Readings on the Exceptional Child: Research and Theory.* Trapp, E. and Himmelstein, P., eds. 2nd Ed.

Lewin, K. (1947): Frontiers in group dynamics II-B. *Human Relations,* **1**: 147–153.

Lewis, H. (1954): *Deprived Children: The Mersham Experiment: Social and Clinical Study.* Oxford University Press, London.

Lindsley, D. (1960): Attention, consciousness, sleep and wakefulness. In *Neurophysiology.* Vol. III, Section I of *Handbook of Physiology.* Field, J., ed. American Physiological Society, Washington.

Lis, E., Lis, A., and de Hackbeil, K. (1970): Ultraviolet-absorbing components of urine from mentally retarded children. III. *Clinical Chemistry,* **16**: 8, 714–721.

Lobascher, M., Kingerlee, P., and Gubbay, S. (1970): Childhood autism: An investigation of aetiological factors in twenty-five cases. *Brit J. Psychiatry,* **117**: 525–529.

Lockyer, L. and Rutter, M. (1970): A five to fifteen year follow-up study of infantile psychosis. IV. Patterns of cognitive ability. *Brit. J. Social and Clinical Psychology,* **9**: 152–163.

Lopez, M. and Ieon, N. (1976): Structural therapy. An overall model for treatment of the psychotic child. *Neurologia-Neurocirugia-Psiguiatria,* **17**: 181–186.

Lotter, V. (1966): Epidemiology of autistic conditions in young children: I. Prevalence. *Social Psychiatry,* **1**: 124–137.

Lotter, V. (1967): Epidemiology of autistic conditions in young children. II. Some characteristics of the parents and children. *Social Psychiatry,* **1**: 163–173.

Lotter, V. (1974): Social adjustment and placement of autistic children in Middlesex: A follow-up study. *J. Autism and Childhood Schizophrenia,* **4**: 11–32.

Lovaas, O. (1966): A program for the establishment of speech in psychotic children. In *Early Childhood Autism.* King, J. K., ed. Pergamon Press, Oxford.

Lovaas, O. (1968): Some studies on the treatment of childhood schizophrenia. In *Research in Psychotherapy.* Schlien, John, ed. Washington, American Psychological Association Press.

Lovaas, O., Berberich, J., Perloff, B., and Schaeffer, B. (1966): Acquisition of imitative speech in schizophrenic children. *Science,* **151**: 705–707.

Lovaas, O., Freitas, L., Nelson, K., and Whalen, C. (1967): Building of social and preschool behaviors in schizophrenic children through nonverbal imitation training. *Behavior Research Therapy* **5**: 171–181.

Lovaas, O., Koegel, R., Simmons, J., and Long, J. (1973): Some generalization and follow-up measures on autistic children in behavior therapy. *J. Applied Behavior Analysis,* **6**: 131–166.

Lovaas, O., Schaeffer, B., and Simmons, J. (1965): Experimental studies in childhood schizophrenia: Building social behavior in autistic children by use of electric shock. *J. Experimental Research Pers.,* **1**: 99–109.

Lowe, L. (1966): Families of children with early childhood schizophrenia: Selected demographic information. *Archives of General Psychiatry,* **14**: 26–30.

Lubinsky, M. and Opitz, J.: The relationship of the syndrome of autism to mental retardation. In preparation.

Lucas, A., Krause, R., and Domino, E. (1971): Biological studies in childhood schizophrenics: Plasma and RBC cholinesterase activity. *J. Autism and Childhood Schizophrenia,* **1**: 72–81.

Macdonald, R. and Allan, J. (1975): The use of fantasy enactment in the treatment of emerging autistic child. *J. Analytical Psychology,* **20**: 57–68.

McKinney, W. (1974): Primate social isolation: Psychiatric implications. *Archives of General Psychiatry,* **31**: 422–426.

McKinney, W. (1975): Psychoanalysis revisited in terms of experimental primatology. In *Sexuality and Psychoanalysis.* Adelson E. T., ed. Brunner Mazel, New York.

McLean, L. and McLean, J. (1974): A language training program for nonverbal autistic children. *J. Speech and Hearing Disorders,* **39**: 186–193.

McQuaid, P. (1975): Infantile autism in twins. *Brit. J. Psychiatry,* **127**: 530–534.

Maher, K., Harper, J., Macleay, A., and King, M. (1975): Peculiarities in the endocrine response to insulin stress in early infantile autism. *J. Nervous and Mental Disease,* **161**: 180–184.

Mahler, M. (1952): On child psychosis and schizophrenia: Autistic and symbiotic infantile psychoses. In *Psychoanalytic Study of The Child.* Vol. 7. International Universities Press, New York: pp. 286–305.

Mahler, M. (1958): Autism and symbiosis, two extreme disturbances of identity. *International J. Analysis,* **39**: 77–83.

Mahler, M. (1961): On sadness and grief in infancy and childhood: Loss and restoration of the symbiotic love object. In *Psychoanalytic Study of Child.* Vol. 16, 332–351, International Universities Press, New York.

Mahler, M. and Furer, M. (1972): Child psychosis: A theoretical statement and its implications. *J. Autism and Childhood Schizophrenia,* **2**: 213–218.

Maier, W. (1970): Sensory deprivation therapy of an autistic boy. *Amer. J. Psychotherapy,* **25**: 228–239.

Margolies, P. (1977): Behavioral approaches to the treatment of early infantile autism: A review. *Psychological Bulletin,* **84**: 249–264.

Marshall, G. (1966): Toilet training of an autistic eight year old through conditioning therapy: A case report. *Behavior Research Therapy,* **4**: 242–245.

Martin, L. et al. (1968): Operant conditioning of kindergarten-class behavior in autistic children. *Behavior Research Therapy,* **6**: 281–294.

Masters, J. and Miller, D. (1970): Early infantile autism: A methodological critique. *J. Abnormal Psychology,* **75**: 342–343.

Matthysee, S. and Baldessarini, R. (1972): S-adenosylmethionine and catechol-O-methyltransferease in schizophrenia. *Amer. J. Psychiatry*, **128**: 1310–1312.

Meltzer, H. (1974): Serum creatine phosphokinase and serum aldolase levels in acutely psychotic patients. In *Enzymology in the Practice of Clinical Medicine.* Blume, P. and Frier, E., eds. Academic Press, Inc., New York: pp. 351–379.

Menolascino, F. (1965): Autistic reactions in early childhood: Differential diagnosis considerations. *J. Child Psychology and Psychiatry*, **6**: 203–208.

Metz, R. (1965): Conditioning generalized imitation in autistic children. *J. Exceptional Child*, **2**: 389–399.

Mihram, D. and Mihram, G. (1974): Human knowledge: The role of models, metaphors and analogy. *International J. General Systems*, **1**: 41–60.

Miller, J. (1965): Living systems: Basic concepts. *Behavioral Science*, **10**: 193–237.

Miller, N. (1969): Language therapy with an autistic nonverbal boy. *Exceptional Children*, **35**: 555–557.

Mnukhin, S. and Isaev, D. (1975): On the organic nature of some forms of schizoid or autistic psychopathy. *J. Autism and Childhood Schizophrenia*, **5**: 100–108.

Morrison, D., Miller, D., and Mejia, B. (1971): The effects of adult verbal requests on the behavior of autistic children. *Amer. J. Mental Deficiency*, **75**: 510–518.

Morrison, H. and Brubakken, D.: Social isolation and deprivation: An environment of rehabilitation. In *Traumatic Abuse and Neglect of Children at Home.* Money, J. and Williams, G., ed. Johns Hopkins University Press, forthcoming.

Morrison, H. and Lubinsky, M.: Association of the syndrome of autism with the syndrome of severe maternal deprivation. (In preparation)

Morrison, H. and McKinney, W. (1976): Environments of dysfunction: The relevance of primate animal models. In *Environment as Therapy for Brain Dysfunction.* Walsh, R. N. and Greenough, W. T., eds. *Advances in Behavioral Biology*, Vol. 17. Plenum, New York.

Morrison, H. and McKinney W., Jr. (1977): Models of human psychopathology: Experimental approaches in primates. In *Biological Bases of Psychiatric Disorders.* Frazer, A. and Winokur, A., eds. Spectrum: pp. 99-113.

Mrochek, J., Dinsmore, S., and Ohrt, D. (1973): Monitoring phenylalanine tyrosine metabolism by high-resolution liquid chromatography of urine. *Clinical Chemistry*, **19**: 927.

Mueller, P. (1962): Plasma free fatty acid concentrations in chronic schizophrenia before and after insulin stimulation. *J. Psychiatric Research*, **1**: 106–115.

Myers, R. E. (1972): Two patterns of perinatal brain damage and their conditions of occurrence. *Amer. J. Obstetrics Gynecology*, **112**: 246–276.

Narasimhachari, N. and Himwich, H. (1973): GC-MS identification of bufotenin in urine samples from patients with schizophrenia or infantile autism. *Life Sciences*, **12**: 475–478.

National Society for Autistic Children (1975): Working definition of autistic children.

Netley, C., Lockyer, L., and Greenbaum, G. (1975): Parental characteristics in relation to diagnosis and neurologic status in childhood psychosis. *Brit. J. Psychiatry*, **127**: 440–444.

Nomura, T. (1976): Psychotherapy for autistic children. *Seishin Hakujakuji Kenkyu*, **210**: 8–13.

O'Brien, R., Semenuk, G., Coleman, M., and Spector, S. (1976): Catechol-O-methyltransferase in erythrocytes of children with autism. *Clinical and Experimental Physiology*, **3**: 9–14.

O'Dell, S. (1974): Training parents in behavior modification: A review. *Psychological Bulletin*, **81**: 418–433.

Ogdon, D., Bass, C., Thomas, E., and Lordi, W. (1968): Parents of autistic children. *Amer. J. Orthopsychiatry*, **38**: 653–658.

O'Gorman, G. (1967): *The Nature of Childhood Autism*. Appleton-Century-Crofts, New York.

O'Gorman, G. (1967): *The Nature of Childhood Autism*. Butterworth and Co., London.

O'Reilly, P., Ernest, M., and Hughes, G. (1965): The incidence of malvaria. *Brit. J. Psychiatry*, **111**: 741–744.

Ornitz, E. (1969): Disorders of perception common to early infantile autism and schizophrenia. *Comprehensive Psychiatry*, **10**: 259–274.

Ornitz, E. (1971): Childhood autism: A disorder of sensorimotor integration. In *Infantile Autism: Concepts, Characteristics, and Treatment*. Rutter, M., ed. Churchill Livingstone, Edinburgh: pp. 50–68.

Ornitz, E. (1974): The modulation of sensory input and motor output in autistic children. *J. Autism and Childhood Schizophrenia*, **4**: 197–214.

Ornitz, E. et. al. (1972): The effect of stimulus interval on the auditory evoked response during sleep in autistic children. *J. Autism and Childhood Schizophrenia*, 2: 140–150.

Ornitz, E., Forsythe, A., and De La Pena, A. (1973): Effect of vestibular and auditory stimulation of the rems of rem sleep in autistic children. *Archives of General Psychiatry*, **29**: 786–791.

Ornitz, E., Guthrie, D., and Farley, A. (1977): The early development of autistic children. *J. Autism and Childhood Schizophrenia*, **7**: 207–229.

Ornitz, E. and Ritvo, I. (1968): Perceptual inconstancy in early infantile autism. *Archives of General Psychiatry*, **18**: 76–79.

Ornitz, E. and Ritvo, I. (1976): The syndrome of autism: A critical review. *Amer. J. Psychiatry*, **133**: 609–621.

Parmelee, A. and Stern, E. (1972): Development of states in infants. In *Sleep and the Maturing Nervous System*. Clemente, C., Purpura, D., and Mayer, F., eds. Academic Press, New York.

Parsons, T. and Shils, E. (1951): *Toward a General Theory of Action*. Harvard University Press, Cambridge, MA.

Passamanick, B. and Knobloch, H. (1975): Some etiologic and prognostic factors in early infantile autism and psychosis. *Pediatrics*, **55**: 182–191.

Patterson, G., Cob, J., and Ray, R. (1973): A social engineering technology for retraining the families of aggressive boys. In *Issues and Trends in Behavior Therapy*. Adams, H. E. and Unikel, I. P., eds. Charles C Thomas, Springfield, IL.

Pavenstedt, E. (1955): History of a child with an atypical development and some vicissitudes of his treatment. In *Emotional Problems of Early Childhood*. Caplan, G., ed. Basic Books, New York: pp. 379–405.

Peed, S., Roberts, M., and Forehand, R. (1977): Evaluation of the effectiveness of a standardized parent training program in altering the interaction of mothers and their non-compliant children. *Behavior Modification*, **1**: 323–350.

Pelkington, T., Lowe, R., Foster, R., Robinson, B., and Antonis, A (1966): Effect of sympathomimetic compounds with B adrenergic effects on plasma free fatty acids in man. *J. Lipid Research*, **7**: 73–76.

Perry, T., Shaw, K., Walker, D., and Redlich, D. (1962): Urinary excretion of amines in normal children. *Pediatrics*, **30**: 576–584.

Perry, T. (1963): N-methylmetanephrine: Excretion by juvenile psychotics. *Science* **139**: 587–589.

Piggott, L. and Simson, C. (1975): Changing diagnosis of childhood psychosis. *J. Autism and Childhood Schizophrenia*, **5**: 239–245.

Pitt, D. and Roboz, P. (1965): A survey of 782 cases of mental deficiency. *J. Mental Deficiency Research*, **9**: 4–23.

Points, R. (1971a): Systems theory or systems approach? *General Systems Bulletin*, 3(4), 38–47.

Points, R. (1971b): Systems theory or systems approach? *General Systems Bulletin*, 3(5).

Polan, C. and Spencer, B. (1959): A check list of symptoms of autism of early life. *West Virginia Medical Journal*, **55**: 198–204.

Polizos, P., Engelhardt, D., Hoffman, S., and Waizer, J. (1973): Neurological consequences of psychotropic drug withdrawal in schizophrenic children. *J. Autism and Childhood Schizophrenia*, **3**: 247.

Pompeiano, O. (1967): The neurophysiological mechanisms of the postural and motor events during desynchronized sleep. *Research Publication Association Research Nervous Mental Diseases*, **45**: 351–423.

Prior, M., Perry, D., Gajzago, C. (1975): Kanner's syndrome or early-onset psychosis: A taxonomic analysis of 142 cases. *J. Autism and Childhood Schizophrenia*, **5**: 71–80.

Pronovist, W. (1961): The speech behavior and language comprehension of autistic children. *J. Chronic Disease*, **13**: 228–233.

Pronovost, W. et al. (1966): A longitudinal study of the speech behavior and language comprehension of 14 children diagnosed as atypical or autistic. *Exceptional Children*, **33**: 19–26.

Quade, E. (1969): *The Systems Approach and Public Policy*. Rand Report P-4035 (AD685126). Rand Corporation, Santa Monica, CA.

Rabb, E. and Hewett, F. (1967): Developing appropriate classroom behaviors in a severely disturbed group of institutionalized kindergarten-primary children utilizing a behavior modification model. *Amer. J. Orthopsychiatry*, **37**: 313–314.

Rank, B. (1949): Adaptation of the psychoanalytic technique for the treatment of young children with atypical development. *Amer. J. Orthopsychiatry*, **19**: 138–147.

Rapaport, A. (1959): Critiques of game theory. *Behavioral Science*, **4**: 49–66.

Rees, S. and Taylor, A. (1975): Prognostic antecedents and outcome in a follow-up study of children with a diagnosis of childhood psychosis. *J. Autism and Childhood Schizophrenia*, **5**: 309–322.

Reichler, R. and Schopler, E. (1971): Observations on the nature of human relatedness. *J. Autism and Childhood Schizophrenia*, **1**: 283–296.

Reisen, A. (1961): Stimulation as a requirement for growth and function in behavioral development. In *Functions of Varied Experience*. Fiske, D. W. and Maddi, S. R., eds. Dorsey Press, Homewood, IL.

Reises, P. (1963): Psychosis of infancy and early childhood. *New England J. Medicine*, **2**: 790–798.

Rendle-Short, J. (1971): A paedatrician's approach to autism. In *Infantile Autism: Concepts, Characteristics and Treatment*. Rutter, M., ed. Churchill Livingstone, Edinburgh.

Renwick, J. (1973): Analysis of cause–long cut to prevention. Editorial. *Nature*, **246**: 114–115.

Rimland, B. (1964): *Infantile Autism: The Syndrome and Its Implication for a Neural Theory of Behavior*. Appleton-Century-Crofts, New York.

Rimland, B. (1971): The differentiation of childhood psychoses: An analysis of checklists for 2,218 psychotic children. *J. Autism and Childhood Schizophrenia*, **1**: 161–174.

Rimland, B. (1972): Comment on Ward's early infantile autism. *Psychological Bulletin*, **7**: 52–53.

Rimland, B. (1973): High-dosage levels of certain vitamins in the treatment of children with severe mental disorders. In *Orthomolecular Psychiatry*. Hawkins, D. and Pauling, L., eds. W. H. Freeman, San Francisco.

Rincover, A. and Koegel, R. (1975): Setting generality and stimulus control in autistic children. *J. Applied Behavior Analysis*, **8**: 235–246.

Ritvo, E. (1977): Annotation. Biochemical studies of children with the syndrome of autism childhood schizophrenia and related developmental disabilities: A review. *J. Child Psychology Psychiatry*, **18**: 373–379.

Ritvo, E., Yuwiler, A., Geller, E., et al. (1971): Maturational changes in blood serotonin levels and platelet counts. *Biochemical Medicine*, **5**: 90–96.

Ritvo, E., Yuwiler, A., Geller, E., Kales, A., Rashkis, S., Schicor, A., Plotkin, S., Axelrod, R., and Howard C. (1971): Effects of L-dopa in autism. *J. Autism and Childhood Schizophrenia*, **1**: 190–205.

Ritvo, E., Yuwiler, A., Geller, E., Ornitz, E., Saeger, K., and Plotkin, S. (1970): Increased blood serotonin and platelets in early infantile autism. *Archives of General Psychiatry*, **23**: 566–572.

Rosen, R. (1974): On the design of stable and reliable institutions. *International J. General Systems*, **1**: 61–66.

Rosenberger, L. and Woolf, M. (1964): Schizophrenic development of two children in the 4–6 age group. *Psychoanalytic Review*, **51**: 469–530.

Rosenblueth, A., Wiener, N., and Bigelow, J. (1943): Behavior, purpose and teleology. *Philosophy Science*, **10**: 18.

Rosenfeld, S. and Sprince, M. (1963): An attempt to formulate the meaning of the concepts "Borderline" autistic. *Psychoanalytic Study of the Child*, **18**: 176–194.

Roukema, R. and Emery, L. (1970): Megavitamin therapy with severely disturbed children. *Amer. J. Psychiatry*, **127**: 249.

Rubin, H., Bar, A., and Dwyer, J. (1967): An experimental speech and language program for psychotic children. *J. Speech and Hearing Disorders*, 32: 242–248.

Rutter, M. (1965): The influence of organic and emotional factors on the origins, nature and outcome of children psychosis. *Developmental Medicine and Child Neurology*, **7**: 518–528.

Rutter, M. (1966): Prognosis: Psychotic children in adolescence and early adult life. In *Early Childhood Autism: Clinical, Educational, and Social Aspects.* Wing, J., ed. Pergamon Press, London.

Rutter, M. (1967): Psychotic disorders in early childhood. In *Recent Developments in Schizophrenia: A Symposium.* Coppen, A. and Walk, A., eds. Royal Medico-Psychological Association, London.

Rutter, M. (1974): The development of infantile autism. *Psychological Medicine*, **4**: 147–163.

Rutter, M., Greenfeld, D., and Lockyer, L. (1969): A five to fifteen year follow-up study of infantile psychosis. II. Social behavioral outcome. *Brit. J. Psychiatry*, **113**: 1183–1199.

Rutter, M. and Lockyer, L. (1967): A five to fifteen year follow-up study of infantile psychosis. *Brit. J. Psychiatry*, **113**: 1169–1182.

Saladino, C. and Sankar, D. V. S. (1969): Studies on erythrocyte magnesium and potassium levels in childhood schizophrenia and growth. *Behavioral Neuropsychiatry*, **1**: 24–28.

Sankar, D. V. S. (1971): Chromosome breakage in infantile autism. *Developmental Medicine and Child Neurology*, **12**: 572–575.

Sankar, D. V. S., Gold, E., Phipps, E., et al. (1962): General metabolic studies on schizophrenic children. *Annals New York Academy Science*, **96**: 392–398.

Sankar, D. V. S. and Saladine, C. (1969): Chromosomal studies on schizophrenic children and controls. *J. Schizophrenia*, **1**: 262.

Schain, R. and Freedman, D. (1961): Studies of 5-hydroxyindole metabolism in autistic and other mentally retarded children. *J. Pediatrics*, **58**: 315–320.

Schechter, D. et al. (1969): Sensory isolation therapy of autistic children. *J. Pediatrics*, **74**: 564–569.

Scheflen, A. (1969): Behavioral programs in human communication. In *General Systems Theory and Psychiatry*. Gray, W., Duhl, F., and Aizzo, N. eds. Little, Brown and Co., New York.

Schele, R., Stark, J., and Giddon, J. (1967): Development of language behavior in an autistic child. *J. Speech and Hearing Disorders*, **32**: 51–64.

Schopler, E. (1962): The development of body image and symbol formation through bodily contact with an autistic child. *J. Child Psychology and Psychiatry*, **3**: 191.

Schopler, E. (1974): Editorial. The stress of autism as ethology. *J. Autism and Childhood Schizophrenia*, **4**: 193-196.

Schopler, E. and Loftin, J. (1969): Thinking disorders in parents of young psychotic children. *J. Abnormal Psychology*, **74**: 281-287.

Schopler, E. and Reichler, R. (1971): Parents as cotherapists in the treatment of psychotic children. *J. Autism and Childhood Schizophrenia*, **1**: 87-102.

Schutte, R. and Hopkins, B. (1970) The effects of teacher attention on follow-instructions in a kindergarten class. *J. Applied Behavior Analysis*, **3**: 117-122.

Schreibman, L. (1975): Effects of within-stimulus and extra-stimulus prompting on discrimination learing in autistic children. *J. Applied Behavior Analysis*, **8**: 91-112.

Shaw, C. (1966): *The Psychiatric Disorders of Childhood*. Appleton-Century-Crofts, New York.

Shaw, C., Lucas, J., and Rabinovitch, R. (1959): Metabolic studies in childhood schizophrenia effects of tryptophan loading on indole excretion. *Archives of General Psychiatry*, **1**: 366-370.

Sherwin, A., Flach, F., and Stokes, P. (1958): Treatment of psychoses in early childhood with triiodothyronine. *Amer. J. Psychiatry*, **115**: 166-167.

Shimeda, S. (1975): On a therapeutic and nursing method dealing with autistic children. *Japanese J. Child Psychiatry*, **16**: 91-96.

Sidell, F., Culver, D., and Kaminskis, A. (1974): Serum creatine phosphokinase activity after intramuscular injection: The effect of dose, concentration, and volume. *J. Amer. Medical Association*, **229**: 1894-1897.

Silver, E. (1970): Operant conditioning of speech sounds in an autistic child. *South African J. Psychology*, **1**: 3-12.

Simeon, J. and Itil, T. (1975): Computerized electroencephalogram. A model of understanding the brain function in childhood psychosis and its treatment. *J. Autism and Childhood Schizophrenia*, **5**: 247-265.

Simeon, J., Saletu, B., Saleuti, M., Itil, T., and DeSilva, J. (1973): Thiothixene in childhood psychoses. Paper presented at the Third International Symposium on Phenothizines, Rockville, Maryland.

Simmons, J., Leiken, S., Lovaas, O., Schaeffer, B., and Perloff, B. (1966): Modification of autistic behavior with LSD-25. *Amer. J. Psychiatry*, **122**: 1201-1211.

Simon, G. and Tarnoky, A. (1966): Insulin tolerance in psychotic children. *Amer. J. Mental Deficiency*, **70**: 829-834.

Simon (1975): Echolalic speech in childhood autism: Consideration of possible underlying loci of brain damage. *Archives of General Psychiatry*, **32**: 1439-1446.

Siva-Sankar, D. (1970): Biogenic amine uptake by blood platelets and RBC in childhood schizophrenia. *Acta Paedopsychiatrica*, **37**: 174-182.

Skinner, B., (1954): Some contributions of an experimental analysis of the behavior of psychotic patients. *J. Nervous Mental Diseases*, **120**: 403-406.

Small, J. (1971): Sensory evoked responses of autistic children. In *Infantile Autism.* Alpern, G. and DeMyer, M. K., eds. Charles C Thomas, Springfield, ILL: pp. 224–242.

Small, J. (1975): EEG and neurophysiological studies of early infantile autism. *Biological Psychiatry,* **10**(4): 335–397.

Speers, R. W. and Lansing, C. (1965): *Group Therapy in Childhood Psychosis.* University of North Carolina Press, Chapel Hill, N.C.

Spence, M. A., Simmons, J. Q., Brown, N. A., and Wikler, L. (1973): Sex ratios in families of autistic children. *Amer. J. Mental Deficiency,* **77**: 405–407.

Spence, M. A., Simmons, J. Q., Wikler, L., and Brown, N. (1974): Dermatoglyphics of childhood psychosis: A family study. *Human Heredity,* **24**: 82–87.

Spitz, R. A. (1949): The role of ecological factors in emotional development in infancy. *Child Development,* **10**: 145.

Spitz, R. A. (1971): The adaptive viewpoint: Its role in autism and child psychiatry. *J. Autism and Childhood Schizophrenia,* **1**: 239–245.

Stark, J. (1972): Language training for the autistic child using operant conditioning procedures. *J. Communication Disorders,* **5**: 183–194.

Stark, J. and Giddon, J. (1968): Increasing verbal behavior in an autistic child. *J. Speech and Hearing Disorders,* **33**: 42–48.

Starr, A. and Hamilton, A. (1976): Correlation between confirmed sites of neurological lesions and abnormalities of the far field auditory brainstem responses. *Electroencephalography and Clinical Neurophysiology,* **41**: 595–608.

Stein, A. (1973): *Process and System: Key Concepts and Their Application.* Montclair State College.

Stevens-Long, J. and Lovaas, O. (1974): Research and treatment with autistic children in a program of behavior therapy. *Child Personality and Psychopathology: Current Topics.*

Stogdill, R. (1970): Introduction: The student and model building. In *The Process of Model-Building in the Behavioral Sciences.* Stogdil, R. ed. Ohio State University Press, Columbus: pp. 3–13.

Stubbs, E. (1976): Autistic children exhibit undetectable hemagglutination-inhibition antibody titers despite previous rubella vaccination. *J. Autism and Childhood Schizophrenia,* **6**: 269–274T.

Stubbs, E. (1978): Autistic symptoms in a child with congenital cytomegalouerus infection. *J. Autism and Childhood Schizophrenia,* **3**: 37–43.

Stubbs, E., Crawford (1977): Depressed lymphocyte responsiveness in autistic children. *J. Autism and Childhood Schizophrenia,* **7**: 49–55.

Student, M. and Sohmer, H. (1978): Evidence from auditory nerve and brainstem evoked responses for an organic brain lesion in children with autistic traits. *J. Autism and Childhood Schizophrenia,* **8**: 13–20.

Sulzbacher, S. I. and Costello, J. M. (1970): A behavioral strategy for language training of a child with autistic behaviors. *J. Speech and Hearing Disorders,* **35**: 256–276.

Suomi, S. J. (1973): Surrogate rehabilitation of monkeys reared in total social isolation. *J. Child Psychology and Psychiatry,* **14**: 71–77.

Suomi, S. J. and Harlow, J. F. (1972): Social rehabilitation of isolate reared monkeys. *Developmental Psychology,* 6: 478–496.

Suomi, S. J. Harlow, H. F., and McKinney, W. T. (1972): Monkey psychiatrists. *Amer. J. Psychiatry,* **128**: 927–932.

Sutherland, J. (1973): *A General Systems Philosophy for the Social and Behavioral Sciences.* Braziller, New York.

Sutton, E. and Read, J. (1958): Abnormal amino acid metabolism in a case suggesting autism. *J. Diseases Children,* **96**: 23–28.

Takahashi, S., Kanai, H., and Miyamoto, V. (1976): Reassessment of elevated serotonin levels in blood platelets in early infantile autism. *J. Autism and Childhood Schizophrenia,* 6: 317-326B.

Tamai, S. and Endo, S. (1975): A case study of an autistic child: Analysis of personality traits and psychodynamics. *Bulletin of the National Institute for Special Education,* 2: 1–11.

Tanquay, P., Ornitz, E., Forsythe, A., and Ritvo, I. (1976): Rapid eye movement (rem) activity in normal and autistic children during rem sleep. *J. Autism and Childhood Schizophrenia,* 6: 275–283.

Tanimukai, H., Ginther, R., Spaide, J., Bueno, J. R., and Himwich, H. E. (1970): Detection of psychotomimetic N, N-dimethylated indoleamines in the urine of four schizophrenic patients. *Brit. J. Psychiatric,* **117**: 421.

Tharp, R. and Wetzel, R. (1969): *Behavior Modification in the Natural Environment.* Academic Press, New York.

Thompson, T. (1966): Psychosocial and cultural deprivations in psychobiological development: Dimensions of early experience. In *Deprivation in Psychobiological Development.* Pan American Health Organization Publication 134.

Tinbergen, E. A. and Tinbergen, N. (1972): *Early Childhood Autism–An Ethological Approach, in Advances in Ethology. Supplements to Z. Tierpsychol,* **10**: 1–53.

Townsend, J. J., Baringer, J. R., Wolinsky, J. S., et al. (1975): Progressive rubella panencephalitis: Late onset after congenital rubella. *New England J. Medicine,* **292**: 990–993.

Treffert, D. (1970): Epidemiology of infantile autism. *Archives of General Psychiatry,* 22: 431–438.

Turner, B. and Jennings, N. (1961): Trisomy for chromosome 22. *Lancet,* 2: 49–50.

Tustin, F. (1966): A significant element in the development of autism. *J. Child Psychology and Psychiatry,* 7-8.

Ullman, L. and Krasner, L. (1965): *Behavior Modification: New Developments and Implications.* Holt, Rinehart and Winston, Inc., New York.

Undenfriend, S., Titus, E., and Weissback, H. (1955): The identification of 5-hydroxy-3-indoleacetic acid in normal urine and a method for its assay. *J. Biological Chemistry,* **216**: 499–505.

Van Krevelen, D. (1963): On the relationship between early infantile autism and autistic psychopathy. *Acta Paedopsychiatric,* **30**: 303–323.

Verhees, B. (1976): A pair of classically early infantile autistic siblings. *J. Autism and Childhood Schizophrenia,* 6: 53–59.

Von Bertalanffy, L. (1949): *Problems of Life.* Harper Brothers, New York.

Von Bertalanffy, L. (1968): *General Systems Theory.* Braziller, New York.

Von Neumann, J. and Morgenstern, O. (1953): *Theory of Games and Economic Behavior.* Princeton University Press, Princeton, N.J.

Walder, L., Cohen, S., Breiter, D., Orne-Johnson, D., and Pavey, S. (1971): In *Handbook of Community Mental Health.* Golan, S. and Eisdorfer, S., eds. Appleton-Century-Crofts, New York.

Wahler, R. (1969a): Oppositional children: A quest for parental reinforcement control. *J. Applied Behavior Analysis,* **2**: 159–170.

Wahler, R. (1969b): Setting generality: Some specific and general effects of child behavior therapy. *J. Applied Behavior Analysis,* 2: 239–246.

Walker, H. (1977a): Incidence of minor physical anomaly in autism. *J. Autism and Childhood Schizophrenia,* **7**: 165–176.

Walker, H. (1977b): A dermatoglyphic study of autistic patients. *J. Autism and Childhood Schizophrenia,* **7**: 11–21.

Walker, H., Danielson, E., and Levitt, M. (1976): Catechol-O-Methyltransferase activity in psychotic children, **6**: 263–270.

Ward, A. (1970): Early infantile autism: Diagnosis, etiology, and treatment. *Psychological Bulletin,* **73**: 350–362.

Ward, T. and Hoddinott, B. (1962): Early infantile autism in fraternal twins. *Canadian Psychiatric Association Journal,* 7: 191–195.

Warfield, J. (1976): *Societal Systems: Planning, Policy and Complexity,* John Wiley & Sons.

Weber, D. (1970): Der fruhkindliche autismus under dem aspekt der entwicklung. Bern, Hans Huber.

Weil, M., Itabashi, H., and Cremer, N. (1975): Chronic progressive panencephalitis due to rubella virus simulating subacute sclerosing panencephalitis. *New England J. Medicine,* **292**: 994–998.

Weiland, I. (1964): Development of object relationships and child-psychosis. *J. Amer. Academy of Child Psychiatry,* **3**: 317–329.

Weiland, I. (1961): Considerations of the development and treatment of autistic childhood psychosis. *Psychoanalytic Study of the Child,* **16**: 1949–1963.

Weiss, H. and Born, B. (1967): Speech training or language acquisition? A distinction when speech training is taught by operant conditioning procedures. *Amer. J. Orthopsychiatry,* **37**: 49–55.

Wenar, C., Autlenberg, B., Dratman, M., and Wolf, E. G. (1967): Changing autistic behavior. *Arch. General Psychiatry,* **17**: 26–35.

White, N. (ed.) (1974): *Ethology and Psychiatry.* University of Toronto Press Toronto.

White, P., DeMyer, W., and DeMyer, M. (1964): EEG abnormalities in early childhood schizophrenia: A double-blind study of psychiatrically disturbed and normal children during promazine sedation. *Amer. J. Psychiatry,* **120**: 950–958.

Widelitz, M. and Feldman, W. (1969): Pink spot in childhood schizophrenia. *Behavioral Neuropsychiatry,* **1**: 29–30.

Williams, R., Bittker, T., Buchsbaum, M., et al. (1975): Cardiovascular and neurophysiologic correlates of sensory intake and rejection. I. Effect of cognitive tasks. *Psychophysiology,* **12**: 427–433.

Windle, W. (1969): Brain damage by asphyxia at birth. *Scientific American,* **4**: 76–84.

Winer, B. (1971): *Statistical Principles in Experimental Design,* 2nd Ed. McGraw-Hill, New York.

Wing, L. (1969): The handicaps of autistic children. A comparative study. *J. Child Psychology and Psychiatry,* **10**: 1–40.

Wing, L. (1971): *Autistic Children: A Guide for Parents.* Brunner/Mazel, New York.

Wing, L. (1976): Diagnosis, clinical description and prognosis. In *Early Childhood Autism.* Wing, L., ed. Pergamon Press, Oxford.

Wing, L. and Ricks, D. M. (1976): The aetiology of childhood autism: A criticism of the Tinbergens' ethological theory. *Psychological Medicine,* **6**: 533–543.

Winther, A. and Bundgaard, L. (1968): Argininosuccinic aciduria in hereditary hair diseases. *Acta Dermatoveney,* **48**: 567–570.

Wolf, M., Risley, T., and Mees, H. (1964): Application of operant conditioning procedures to the behavior problems of an autistic child. *Behavior Research and Therapy,* **1**: 305–312.

Wolff, S. and Chess, S. (1965): An analysis of the language of fourteen schizophrenic children. *J. Child Psychology and Psychiatry,* **6**: 29–41.

Wolff, W. and Morris, L. (1971): Intellectual and personality characteristics of autistic children. *J. Abnormal Psychology,* **77**: 155–168.

Wolman, Benjamin (ed.) (1965): *Handbook of Clinical Psychology.* McGraw-Hill, New York.

Wyatt, R., Termini, B., and Davis, J. (1971): Biochemical and sleep studies of schizophrenia: A review of the literature–1960–1970. Part 1. Biochemical studies. *Schizophrenia Bulletin,* **4**: 10–44.

Yamazaki, K. (1970: Neuroendocrinological investigations in mental disorders, particularly in terms of pyrogen test. Part II. A study in schizophrenia and manic psychosis. *Psychiatria et Neurologia Japonica,* **72**: 467–483.

Yamazaki, K. et al. (1975): An application of neurendocrinological studies in autistic children and Heller's syndrome. *J. Autism and Childhood Schizophrenia,* **5**: 323–332.

Yarrow, L. (1961): Maternal deprivation: Toward an empirical and conceptual re-evaluation. *Psychological Bulletin,* **58**: 459–490.

Young, J., Caparulo, B., Shaywitz, B., Johnson, W., and Cohen, D. (1977): Childhood autism. Cerebrospinal fluid examination and immunoglobulin levels. *J. Amer. Academy of Child Psychiatry,* **16**: 174–179.

Yuwiler, A. (1975): Uptake and efflux of serotonin from platelets of autistic and nonautistic children. *J. Autism and Childhood Schizophrenia,* **5**: 83–98.

Yuwiler, A., Ritvo, E., Bald, D., Kipper, D., and Koper, A. (1971): Examination of circadian rhythmicity of blood serotonin and platelets in autistic and non-autistic children. *J. Autism and Childhood Schizophrenia,* **1**: 421–435.

Zapella, M. (1975): The ethological proposition and infantile autism. *Archives di Psicologia Neurologio e Psichiatria,* **36**: 119–143.

Zaslow, R. (1967): A psychogenic theory of the etiology of infantile autism and implication for treatment. Paper presented at the California Psychological Association.

Zimmerman, E., Zimmerman, J., and Russell, C. (1969): Differential effects of token reinforcement on instruction-following behavior in retarded students instructed as a group. *J. Applied Behavior Analysis,* 2: 101–112.

Zingg, R. (1940): Feral man and extreme cases of social isolation. *Amer. J. Psychology,* 53: 487–517.

Index

Affective barrier, 58-59
Aggression, 79
Amino acids, 20
Amphetamine
  D-, 61
  L-, 61
Antidepressants, 61
Anxiolytics, 62
Autism
  categories of, 4, 6-7
  and childhood schizophrenia differential diagnosis, 2-4, 6-7
  classification, 4, 6-7
  as a cognitive dysfunction, 38
  definition of the Society for Autistic Children, 5
  diagnosis, 1-34
  primary, 3, 6
  secondary, 3, 6
Autistic children
  attentional functions of, 21
  and body manipulation, 63-64
  and reinforcement of imitative behavior, 44

Behavior therapy, 36-49
  Operant method, 36, 39-42
Bizarre mannerisms, 79-83
Body manipulation, 63-64
Bufotenine, 18
Butyrophenones, 62

Cardiovascular system, and attentional functions, 21
Catechol-O-methyltransferase (COMT), 17
Cerebral lipoidosis, 23
Cerebrospinal fluid, 16, 17
Childhood schizophrenia and autism, differential diagnosis, 2-4, 6-7
Chlorpromazine, 62
Cholinesterase, 17
Chlorodiazepoxide, 62
Chromosomes, and abnormality, 13-14
Circadian rhythms, 16, 18
Classical conditioning, 43
Classroom, 99
  behavior, 48
  nonverbal learning, 96-97
  special programs, 99
  verbal learning, 98-99
Color, matching, 94-95
Community transition, 99, 165-183
  agency involvement, 169-173
  community involvement, 173-175
  service provision, 175-183
  systems, 169-173
  types, 167-173
Compliance, 79-80
Conditioning
  classical, 42
  operant, 42
Congenital rubella, 23

Consultation, community, 102-103
Cortisol, 18
Creatine phosphokinase (CPK), 19-20
Cybernetics, 7, 71-72
Cytomegalovirus (CMV), 23

D-Amphetamine, 61
DBH (Dopamine-B-hydroxylase), 17
Deprivation, maternal, 24-32
Dermatoglyphics, 15
Development,
  perceptual motor, 90
  systems, 66-68
  word, 86-87
Dimethoxyphenylethylamine (DMPEA), 19
Diphenhydramine, 62
d-Lysergic acid diethylamide (LSD-25), 62
Dopamine-B-hydroxylase (DBH), 17
DMPEA (Dimethoxyphenylethylamine), 19
Dysfunction,
  cognitive, 38
  ego, 53-55
Dystonia, 62

Effectiveness therapy, 221-229
Ego dysfunction, 53-55
Electroencephalography, 21-22
Ethology, 8-9, 25
Expressive therapy, 59
Extrapyramidal syndrome, 62
Extinction techniques, 48

Family,
  characteristics, and abnormal child, 9-11
  "closed" system, 69-70
  genetics, 14-15
Fixed ratio schedule, and reinforcement, 47
Free fatty acids, 17-18
Free love, 58

Generalization, 48, 143-144, 152
Genetics, and abnormalities, 13-15
Glucose, 18
Goals,
  panic, 77-78
  treatment, 35-37
  treatment systems, 70
Group therapy, 57
Growth hormone, 18

Hallucinogens, 62
Haloperidol, 62
Handedness, 15
Homovanillic acid (HVA), 17
17-Hydroxycorticosteroids (17-OCHS), 18
5-Hydroxyindoleacetic acid (5H1AA), 16-17

Identity crisis, 56
Imitative behavior, reinforcement of, 44
Immune responses, 15-16
Imipramine, 61
Insulin, 17-18
Intervention,
  empirical, 64
  school, 143-164

Kanner's syndrome, 1-2, 7
17-Ketosteroids, 18

L-Amphetamine, 61
Language,
  acquisition, 43-49
  deficits, 12-13
  expressive, 45, 47, 83, 89
  programming, 83-98
  pre-language, 88, 96-97
  receptive, 45-46, 89
L-Dopa, 63
Lesions, organic, of brain, 21
Lipoidosis, cerebral, 23
Lithium carbonate, 62

LSD-25 (d-Lysergic acid diethylamide), 62

Magnesium, 20
Mannerisms, bizarre, 79-83
MAO (Monoamine oxidase), 17
Maternal deprivation, 24-32
Math readiness, 96, 98
Maturity, 60
Mauve spot, 19
Megavitamin therapy, 63
Mendota Mental Health Institute, data collection, 106
Methylphenidate, 61
Models, use of, 72-73
Monoamine Oxidase (MAO), 17

Nicotinamide, 19
Nicotinic acid, 19
Noninterpretive therapy, 52-53
Norepinephrine (NE), 16, 17, 18
Noun labeling, 87
Neurochemistry, 16-19

Object relations, 56
Occupational therapy, 89-93
Operant interpersonal therapy 39-42
Operant method, behavior therapy, 36, 39-42
Organic lesions, of brain, 21

Panic philosophy, 75-76
Parents, characteristics of, 9-11, 38-39, 56-57
Parent training, 76, 101-102, 104, 108-142
  benefits, 119-122
  effectiveness, 122-142
  evaluation of, 104
  general schedule, 113-114
  in-home, 115-116
  issues, 108-109
  preparation, 112
  procedure, 111-116
  process, 109-110
  sample, 112-113
  significant others, role, 117-119
  variations schedule, 114-115
Physiology, 20-22
Play, 48
Play therapy, 59-60
Pontine reticular system, 21, 38
Potassium, 20
Primary autism, 3, 6
Primary reinforcement, 42
Probenecid, 17
Prognosis, of infantile autism, 32-34
Programming, school, 94-99
Project for Psychotic and Neurologically Impaired Children (PPNIC), 74-107
  components, 78-83
  cost, 153
  effectiveness, 221-229
  goals, 77-78
  in service training, 223-225
  philosophy, 75-76
  school follow-up, 149
  staff
    flexibility, 228
    morale, 226-228
    training, 225-226
Psychoanalysis, and children, 49-51
Psychodynamics, of children, 8
Psychodynamic therapy, 49-61
Psychotherapy, 52-61

Reading readiness, 96, 98
Receptive language, 45-46, 89
Reinforcement
  primary, 42
  REM sleep, 20-21
  secondary, 42
Responses,
  evoked, 21
  immune, 15-16
Rubella, congenital, 23

Schizophrenia, childhood and autism, differential diagnosis, 2-4, 6-7

School programming, 94-99
  Nonverbal classroom, 96-97
    academic, 96-97
    color matching, 94-95
    math readiness, 96
    preacademic, 96
    reading readiness, 96
    size discrimination, 96
    writing readiness, 96
  Intermediate classroom, 97-98
    academic, 98
      general classroom activities, 98
      math readiness, 98
      reading readiness, 98
      writing readiness, 98
    preacademic, 97-98
Secondary autism, 3, 6
Secondary reinforcers, 42
Seizures, 32
Sensory deprivation therapy, 64
Sensory isolation therapy, 63-64
Serotonin, 16
Significant other, 117-119
Skills, acquisition, 103
Skills,
  development of, in autistic-like children, 79
  perceptual motor, 90
  self-help, 90, 93
Sleep, REM, 20-21
Society for Autistic Children, 5
Somatic therapy, 61-64
Stigmata, 15
Stimulants, 61
Suppressive therapy, 59
Systems theory, 65-66

Tardive Dyskinesia, 62
T-Cells, 15
Teacher training, 100
Temper tantrums, 79-80
Therapy
  behavior, 36-49
  effectiveness, 221-229
  expressive, 59
  group, 57
  megavitamin, 63
  noninterpretive, 52-53
  occupational, 89-93
  operant interpersonal, 39-42
  play, 59-60
  psychodynamic, 49-61
  sensory deprivation, 64
  sensory isolation, 63-64
  somatic, 61-64
  suppressive, 59
Thiothixene, 22, 62
Thioxanthenes, 22, 62
Thyrotropin stimulating hormone, 63
Time out, 48, 79
Toilet training, 48, 90, 93
Transition, community, 99, 165-183
Transitioning, school, 145-148
Treatment goals, 35, 37
Tri-iodothyronine (T3), 63
Trihexyphenidyl, 22
Tryptophan, 16, 17
T3 (Tri-iodothyronine), 63

Verbal classroom, 98
  academic, 98
    general classroom, 99
    math readiness, 99
    reading readiness, 98
    special programs, 99
    writing readiness, 98-99
  preacademic, 98
Vestibular function, 21
Virus, 22-23

Word expansion, 87-89
Writing readiness, 96, 98-99

Form No. 3.

PSY, RES.L-1

Bureau of Educational & Psychological Research Library.

The book is to be returned within the date stamped last.

………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………
………………	………………	………………

WBGP-59/60-5119C-5M

Form No. 4

BOOK CARD

Coll. No. 618·92898 / BRU   Accn. No. 27766

Author……………………………

Title……………………………

Date.	Issued to	Returned on